September 1952

THE CHEMIST

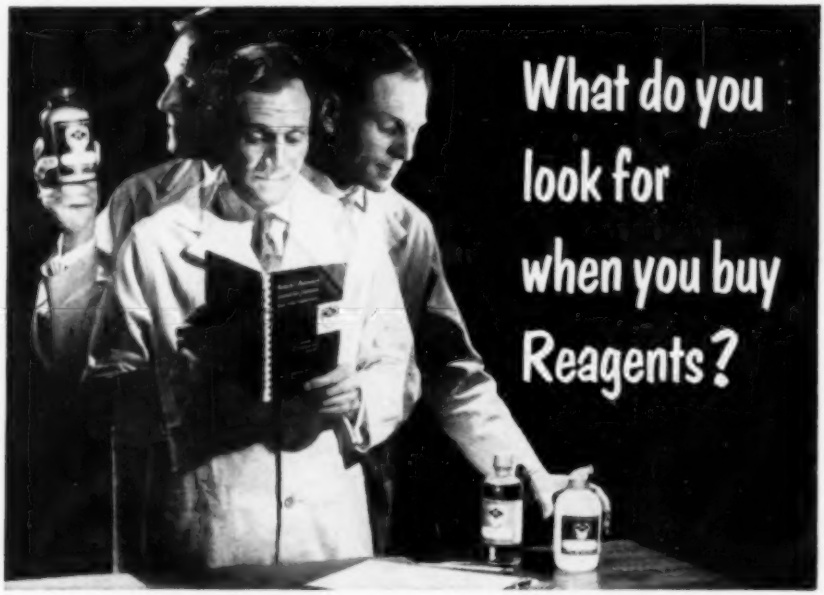
VOLUME XXIX NUMBER 9

C & E N

DR. FREDERICK A. HESSEL, AIC Treasurer

Honored by New Jersey Chapter

(See Page 419)



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Annual Reports
Communications

In This Issue

Editorial—Only a Chemist, Raymond W. Jacoby 413

A New Role for the Chemist, Dr. Frederick A. Hessel, F.A.I.C. 417

Dr. Hessel Honored by New Jersey Chapter (and Early Days of the AIC) 419

Research for an Industry, Roy W. Peet, F.A.I.C. 427

Safety and Hygiene in the Plant, Dr. Lawrence T. Fairhall, F.A.I.C. 437

Books on Chemistry—The Publishers' Viewpoint, Fred P. Peters 445

Council 451

AIC Activities 453

Nominations Requested 454

Information 457

For Your Library 459

Opportunities 461

Condensates 464

ANNUAL MEETING PAPERS

Continuing the series of excellent papers, presented at the 1952 AIC Annual Meeting, the following articles will appear in the October and later issues of THE CHEMIST:

The Technical Editor's Approach to an Expanding Literature, by D. O. Myatt

Employer-Employee Relations (Introduction to Session D), by Dr. George L. Royer, F.A.I.C.

The Orientation of Research Activities, by Raymond Stevens, F.A.I.C.

The Responsibility of Chemists in Patent Matters, by Dr Francis X. Murphy

Safety and Hygiene in the Use of Radioisotopes, by John C. Pennock

Industrial Problems in Skin Cancer, by Dr. Ernest L. Wynder

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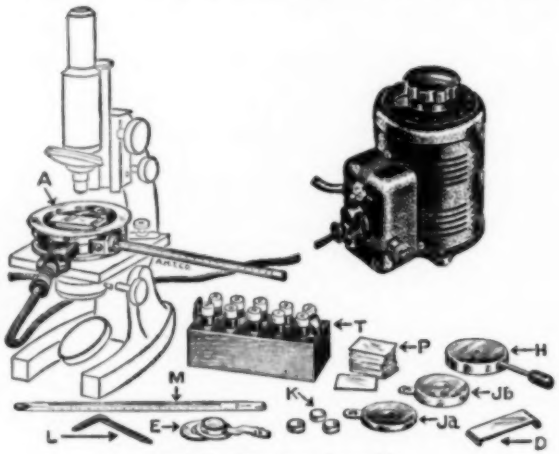

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EDITORIAL

Only A Chemist

Raymond W. Jacoby, Department and Branch Manager, Ciba Company, Incorporated, New York 14, N. Y.

AS I entered a hotel lobby, a young man arose from a chair, came over to speak to me, and called me by name. It was very embarrassing to realize that he did not look even vaguely familiar, and to have to apologize as I expressed my regrets at not being able to place him. It was a great relief, therefore, when he said, "I have never met you, but attended a meeting at which you spoke," and then he mentioned the particular meeting. When I inquired as to his identity and occupation, he told me his name and then said, "I am only a chemist with so-and-so company." Hurrying to keep an appointment, I was then unable to continue the conversation, but later that day, what he had said struck me very forcibly and started in action a whole train of thoughts.

How had he chosen the field of chemistry? Surely he had not put various names into a hat and pulled one out at random. How had he selected the school where he was to receive his training? The choice must have been arrived at after considerable thought and planning. And, most important of all: Why had he been allowed to complete his formal education and go forth thinking he was "only a chemist?" However, that he was not "only a chemist" was indicated by the fact that he had attended a meeting where the discussions were not confined to chemistry. Then, I realized that I should be included among the factors in his life which had failed to create in him the proper vision. Evidently, there is a fault somewhere, but one questions how a person could be associated with any branch of science and not become inspired by the many wonders which exist.

Consider first the unlimited breadth of scope of science. Many phases soar so high into the realm of theory that only a few can even comprehend what it is all about. How does one start to think about, or become interested in such complex subjects? How is it that, throughout the ages, people have arisen who devoted their lives to one specific problem? Why has it always been this way? Surely it cannot all be accidental. It is so well coordinated that it rules out the possibility of chance. It seems to be convincing evidence of something much greater than man himself.

Thinking further along these lines leads to the question of what has been the motivating influence. It cannot be the prospect of material gain, as history shows that most of those who made the greatest basic contributions to our knowledge and progress re-

ceived relatively little material benefit. If we think back through the centuries of those who have won enduring fame, we realize that they fall into two classes: men of might, and men of mind. Of the men of might, a few were despots, and they are remembered not because that quality is admired, but because they are outstanding examples of what human beings should not be. The men of might who are revered are those who were also men of mind who used might only to carry out their ideals.

The men of mind are inspired men with genius and vision, who have no ulterior motives, and who probably could not explain their zeal and efforts other than to say that it is just their nature. Undoubtedly, when Benjamin Franklin first decided to fly a kite during an electrical storm, he did not reason that, if he did so, his name and fame would pass down to posterity. Furthermore, if he described his anticipated experiment to an uninspired layman, the latter would probably have walked away shaking his head and saying to himself: "How crazy can people get?" The men of science who will always be remembered were generally devoid of self-interest, but so filled with boundless curiosity, inspiration and vision that they labored continuously to add to the store of man's knowledge.

As we read history and observe the names of those who receive lasting acclaim, and then examine the reasons for this admiration, we obtain a true understanding of what the world considers to be most noteworthy. We come to realize what really is worth while. If we tend to be more mindful of material things and personal benefit, a study of history will make us realize that few of these men of fame were rewarded in this way. But, if we use other standards of measurement, we can believe that they received much more precious rewards—the inner knowledge that they had contributed to man's progress.

The men of science should be proud that they are part of such a group. They should realize that all about them are countless opportunities to serve. They should receive inspiration and vision from what has gone before. As I considered my chance meeting, I hoped that some day that young man would get the proper outlook! that some day he, too, would make some contribution, however slight. Then, during one of those numerous hours when he is alone with his thoughts, he can say to himself: "I have made a contribution to progress, and to think that at one time I thought I was 'only a chemist.'"

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A New Role for the Chemist

Dr. Frederick A. Hessel, F.A.I.C.

Treasurer, The American Institute of Chemists, Inc.

(Presented when the first Honor Scroll of the New Jersey Chapter was awarded to him, May 21st, at Elizabeth, N. J.)

Aristotle stated that "It is more difficult to organize peace than to win a war," a truth that is only too evident today. Dr. Hessel's article reveals some of the reasons for our lack of success in public affairs, and calls upon trained scientists to apply their minds to our national and international problems.

FOR a long time we chemists have been very proud of our contributions to the material well-being of our fellow men. We have given them better and more abundant food, clothing, and shelter than provided by nature, and we are prolonging their life-span by the so-called miracle drugs.

We have every right to boast of these achievements, but it seems that in the confused world of today we are called upon to go one step farther—to come out of the laboratory into the arena of public affairs. I say this because I believe that our systematic scientific training has given us the ability to think clearly, and it is clarity of thought and respect for the truth that are most sadly lacking in the mental processes of so many of those around us.

Men are more comfortable at least in this country than they have ever been before; they have more hours of leisure during their years of productivity and a better chance of reaching retirement in good health than would have been dreamed possible a generation ago. But the chances of their enjoying either leisure or retirement are lessened by the confusion and fears with which they are beset. Revelations of corruption in high places, disquieting reports from home and abroad, and a general feeling of insecurity permeate men's consciousness through all the media of communication, and unfortunately, most people are not equipped or do not take the trouble to evaluate the facts in their proper setting. They are accepting packaged-thinking and allowing their minds to be made up about everything, from breakfast cereals to international affairs, by commentators and propagandists.

They need the guidance of those who can think straight and analyze facts, and that is where we should come in. We should be able to apply to the questions of the day our ability to correlate data and reach at least a sound working hypothesis. Certainly, we could never have succeeded in

achieving the synthesis of nylon, high octane gas, synthetic detergents, etc., which are doing so much to improve the modern standards of living, if our thinking had been as incoherent and careless as some of that applied to the present economic and social problems.

Before the Nineteenth Century, progress was largely the result of chance discoveries. During the last hundred years, it has been achieved by inventions made to solve specific problems. We have now reached a point of planning for the future, and unfortunately, it is not the scientists who are doing most of the planning. We are leaving our future as well as our present in the hands of those whose training has been largely in the social field. It is time that we picked up our share of the burden and offered the particular assistance that we alone can give.

You will say, "Yes, yes, that is all very well, but what in the world do you really expect us to do about it?" And here I would like to address particularly the younger men. For old codgers like myself, it is perhaps a little late to lose the habits of several decades. We have become so used to the quiet and security of the laboratory as not to be well-equipped for the hurly-burly of the political life.

For the younger men it will be easier. You can begin your catalytic action by becoming active in the Parent-Teachers' Association, which your wife runs so successfully. Then there are the neighborhood associations less dominated by the so-called 'weaker sex,' and the community projects that bring you close to the working of our local government. Training on the town level can be considered as your undergraduate work. It will prepare you for state and national affairs.

Tomorrow is going to be a total synthesis of the past, the present, and the future. The chemist equipped to analyze those elements and to foresee their interactions should at least have a say in their development. Get busy!

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Appointed: Gilbert J. Straub, F.A.I.C., as director of product development of The Harrower Laboratory, Inc., St. Louis 6, Missouri, with which he has been associated for six years as chief chemist. He was formerly with General Food Corp., William R. Warner & Co., and Advance Research Clinical Laboratories. He served as major in the Sanitation Corps for four years.

Dr. Hessel Honored by New Jersey Chapter

PETER J. GAYLOR
Retiring Chairman N. J. Chapter

DR. FREDERICK A. HESSEL, recently re-elected treasurer of THE AMERICAN INSTITUTE OF CHEMISTS, and president of Montclair Research Corporation, Montclair, N. J., was presented with the first Honor Scroll of the New Jersey Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, at a dinner meeting in Elizabeth, N. J., May 21st. It was an evening of many activities.

Dr. Lincoln T. Work, AIC president, presented the Honor Scroll to Dr. Hessel, who was cited for his "untiring efforts and invaluable service to his profession, both as an individual and as a member and an officer of THE AMERICAN INSTITUTE OF CHEMISTS." Peter J. Gaylor, retiring chairman of the New Jersey Chapter, and patent attorney of Gaylor, Cifelli and Jurick, Newark, N. J., presided.

Dr. Lloyd Van Doren, national AIC secretary, spoke briefly on Dr. Hessel's scientific and professional life, and reminded the audience that the first beginnings of the AIC were started by chemists in the State of New Jersey in 1921.

Dr. W. D. Woodward, psychiatric consultant for American Cyanamid Company, gave the keynote address on "Personality Factors in Success and Failure." He was introduced by Warner F. Goepfert, F.A.I.C., of Interchemical Corporation.

Student medals were presented by the New Jersey Chapter to Thomas N. Vincent of Princeton University and Richard Miller of Rutgers University.

The election of the following new Chapter officers was announced: Chairman, Harry Burrell; chairman-elect, Dr. James B. Allison; secretary, Erving Arundale; treasurer, Dr. William A. Raimond, and representative to the National Council, T. R. Donlan.

Citation

In presenting the scroll to Dr. Hessel, Dr. Work stated:

"It is a distinct pleasure to be with old friends in my new capacity as AIC president, particularly since you have asked that I serve in your stead in presenting your own first Chapter Award. It augurs well that your judgment has been so good, in the selection of the recipient for this award. May the choices that you make in succeeding years give indication of the same careful thought to those attributes which typify the objectives of THE AMERICAN INSTITUTE OF CHEMISTS.

"On this first visit with you, I have tried to find out something about your problems, in order that the national society may serve with you. There has been a healthy exchange of ideas, from which I trust we have both benefited. The INSTITUTE cannot attain perfection at once. It has been a quarter of a century in the making and looks forward to many more years of useful service. Formed in the twenties to meet a need for professional thinking not covered by the technical societies in our fields, it had to adjust itself to the pressures from right and left. Soon after it was founded, it was faced with a first real test—chemists and chemical engineers were out of work because of the state of business. The excellent work of the Breyer Committee saved many for useful years in the profession. Then the passing war years of the forties brought new problems and they were drastically different from those that had gone before. In its service, the INSTITUTE has grown. Our work today needs to be on things appropriate to the age and maturity of the INSTITUTE. That should call for re-evaluation of objectives, greater service at the Chapter level and great support by the industry and the profession to attain these goals.

"Over many of these years, our award recipient tonight has been a valued member of the INSTITUTE and for the past ten years a valued servant in the national office.

"Frederick Adam Hessel: Born in Belgium and since 1918 a naturalized citizen of the United States; trained through the degree of doctor of science at Strasbourg; with the U. S. Army in World War I; research chemist with Vacuum Oil Company; in investment banking; research chemist and patent negotiator for Ellis Foster Company and for Montclair Research Corporation; and since 1941, president of Montclair Research Corporation, you have quietly and effectively served in the plastic and resin field to advance its technology.

"Also as an active participant in your Chapter and as treasurer of THE AMERICAN INSTITUTE OF CHEMISTS since 1943, you have served our Institute faithfully and well.

"The New Jersey Chapter has selected you for the award of its first Honor Scroll. On behalf of the Chapter and with its greetings and the greetings of the INSTITUTE that

you have served, it gives me great pleasure to present to you the scroll which bears today's date and the signatures of Peter J. Gaylor, chairman, and Herbert W. Mackinney, secretary, of the New Jersey Chapter, and it carries the following citation:

" 'In recognition of untiring efforts and invaluable service to his profession, both as an individual and as a member and officer of The American Institute of Chemists.' "

Dr. Hessel's Career

Dr. Van Doren touched upon some of the events in Dr. Hessel's career: Born in Antwerp, Belgium, Dr. Hessel became a citizen of the United States in 1918, while serving in the U. S. Army. He holds the degree of Licencie es Sciences Chimiques from the Institute Meurice-Chimie; is a graduate of the Petroleum Institute of the University of Strasbourg (1923), and has received the degree of Doctor of Science from the University of Strasbourg (1924). After coming to the United States, he became personal assistant to Prof. Ralph H. McKee, professor of chemical engineering at Columbia University, New York, N. Y., from 1924 to 1925. From 1925 to 1929, he was research chemist for Vacuum Oil Company, and then became statistician (oils and chemicals) for L. F. Rothschild & Company until 1932, and again from 1934 to 1936, having spent the intervening year with the Sun Investment Corporation. His next position was that of statistician and underwriting investigator for Riter & Company, which he left in 1939 to be patent negotiator for Ellis-Foster Company, Montclair, N. J., an activity in which he is still engaged. In 1941, he was made president of Montclair Research Corporation of Montclair, N. J.

Dr. Hessel is co-author of *Chemistry in Warfare* (Hastings House), with J. W. Martin and Mrs. Hessel; co-author of *Strategic Materials in Hemisphere Defense* (Hastings House), with Dr. Walter J. Murphy and Mrs. Hessel, and co-translator of *Acetylene* by Piganiol (Mapleton House), with John B. Rust. He is the author of many papers in the hydrocarbon and related fields and holds a number of patents.

Dr. Hessel and Miss Mary Stanley Hinrichs were married in 1930. They have a lovely daughter, Adrienne, who is a senior in college, majoring in psychology.

"By way of illustrating, although inadequately," Dr. Hessel's personality, Dr. Van Doren referred to two incidents. The first occurred in 1941. "The laboratory was producing a sensitive chemical in rather large amounts considering the limited laboratory equipment, and the final stage was a careful, high vacuum distillation. The staff members were all taking turns running the distillation during the night and early morning hours. Then to their dismay, certain

batches were being rejected and returned with some caustic comments. Upon checking, it was found that Fred's production was three times larger than any other and further investigation revealed that at about two a.m. his desire for production outweighed his caution to such a degree that the vacuum and heat were turned up to the highest point, with the result that one-quarter distilled, while three-quarters foamed over. The sight of that stream of product pouring over remains a vivid memory to the staff!

"The second took place last year and nearly became a municipal affair with the loss of a good chemist. This, also, happened in the wee small hours, Fred had been working hard, with his characteristic speed and disregard for personal rest, for a week or more, but nevertheless, he volunteered to work through the night with a chemist on a particularly pressing problem. About three in the morning, the chemist became aware that Fred was nowhere around, so he began searching. In the office, he found a body sprawled on the floor, motionless and in what appeared to be a contorted position. Being naturally quick-witted as all chemists are, he grabbed the telephone and began shouting for the police. The police were slow in answering, but the body roused-up and quickly demanded to know, in Fred's sleepy voice, what was going on. When satisfactory explanations had been made to the telephone operator and to the police, sleep was forgotten!"

Members of the AIC are grateful to Dr. Hessel for his years of faithful, conscientious service as treasurer; as a clear-thinking member of many committees, and as a judicious member of the National Council. But his devotion to his profession does not cease with his official duties as an officer or member of various organizations. He gives generously of his own meagre personal time to assist chemists whenever he is called upon. Those who know him have discovered that his fine character, his keen mind, and his sympathy, often provide just the needed light for an intelligent solution to a personal problem. In presenting him with its first Honor Scroll, the New Jersey Chapter was not unmindful of the fact that Dr. Hessel was instrumental in organizing the Chapter and in encouraging its activities.

Early Days of the AIC

THE AMERICAN INSTITUTE OF CHEMISTS was first conceived by chemists in the State of New Jersey, Dr. Van Doren pointed out, and then read several excerpts from *Chemical Age*. The first was taken from the issue of December, 1920:

> "We are indebted to Dr. F. D. Crane, research chemist, 74 N. Willow St., Montclair, N. J., for the . . . questionnaire which is submitted by a committee of the New Jersey Chemical Society comprising with Dr. Crane as chairman, G. T. Cottle and C. P. Titus, and is now being distributed. It was presented

formally at the notable meeting of the New Jersey Chemical Society at Newark on Dec. 13, where it aroused discussion of a character that convinced its sponsors that they had given the initial impetus to a project of great potentialities of usefulness not only to the practicing chemist but to the industries predicated on the chemist's work.

"At the October meeting of the New Jersey Chemical Society, a paper was read by Archibald Craig, of Ledoux & Co., New York, on the 'Status of the Analytical Chemist,' which pointed out the need of a closer affiliation among chemists. It was resolved that a committee be appointed to take action to ascertain if it is advisable to form an American Institute of Chemistry."

Dr. F. D. Crane, secretary of the New Jersey Chemical Society, writing in the June 1921 issue of *Chemical Age* stated:

"It is with no little satisfaction that I can announce to American chemists the active steps that are being taken under the authority of the New Jersey Chemical Society to promote in this state the movement for the organization of the American Institute of Chemistry.

"After a thorough consideration of the replies to our questionnaire printed in *Chemical Age*, and of other comments upon our plan, our Committee recommended and our Society voted that the movement be continued by our Board of Managers.

"This body directed the writer to proceed with the work in the direction of tabulating New Jersey manufacturers and products and New Jersey chemists. . . .

"The soundest and best advice which we have received has told us to begin by making this a state matter. It is our purpose to do this, but at present we can not see that we can exclude any one from registration who wishes to take advantage of it. If chemists in other states, or in any national organization wish to take up the matter, they are certainly free to do so.

"Our model in organization will be, so far as we can now see, that of the Certified Public Accountants. We want to put chemists on this plane. We want all the suggestions we can get. We want to lay our foundation broad and deep and stable enough to carry any number of chemists in every branch of industry."

From the January 1923 issue of *Chemical Age*:

"No project in American Chemistry has ever been discussed with greater interest or with such widespread measure of approval as the one looking to the establishment of a society which, without duplication of the functions of any existing society, would dedicate itself solely to the organized study of the material problems of chemists, and which would serve the great body of chemically trained men along the same lines as the bar association serves the lawyer and the medical society the physician.

"As a result of the courageous promotion of this project over a period of two years the principles and the necessity for the functions of such an economic organization received the overwhelming approval of American chemists, with such general demands for action in the way of organization that, under date of January 12, 1923, the following letter, accompanied by a copy of a provisional constitution and by-laws of a proposed American Institute of Chemistry, was sent to about 100 men and women resident in and about New York City . . .

"Dear Sir:

"As one impressed with the importance of sound effort to promote the welfare of chemists, and to give their work the status of a profession, you are invited to attend the initial meeting to effect the formation of the American Institute of Chemistry as a strictly professional economic organization of chemically trained men. . . .

"About sixty replies promising attendance were returned, together with several letters expressing good-will and reasons for inability to be present.

"Purposes of the American Institute of Chemistry:

"To inculcate independence in the practitioner of chemistry by demonstration in every ethical way of the advantages of economic cooperation by the class.

"To establish standards of capacity.

"To promulgate a code of ethics.

"To increase the opportunities for the effective use of the services of trained chemists.

"To promote the material welfare of the practitioner of chemistry wherever he may be and to aid and protect him in the solution of the problems of his profession.

"To give the work of the chemist the professional status its importance to society demands.

"To promote popular appreciation of that status by the cultivation and display of ability to work cooperatively in all matters having to do with improvement of employment conditions and the advancement of the welfare of chemists.

. . .

"Letter from Dr. William H. Walker:

"Gentlemen of the Organization Meeting Committee of an American Institute of Chemistry:

"I am much interested in an Institute of Chemistry . . . because I believe there exists a field of great usefulness for such an organization in the economic development of American Chemistry.

"There is need of a professional society which will give to the chemists in industry the same character of service as is rendered by the lawyer by the bar association, or the physician by the medical societies.

"There need be no duplication of effort in the work because here lies a field until now untilled, and an opportunity for helpfulness which only a society with such a directness and unity of purpose as I judge the American Institute of Chemistry will have, can adequately grasp and utilize.

"I wish you and your associates every success in this work, and a long and useful life for the American Institute of Chemistry."

—WILLIAM H. WALKER.

And in October, 1923, *Chemical Age* states:

"That the American Institute of Chemists has a recognized place as the strictly economic professional society of qualified chemists, was emphasized by its booth at the Chemical Exposition, where its character and aims were explained to many visitors and applications for membership enrolled, and by the presence at its second general business meeting on September 20th . . . of Dr. Arthur C. Neish and L. E. Westman, respectively president and secretary of the Canadian Institute of Chemistry.

"This meeting will be notable in the history of the Institute as marking its formal recognition by the older Canadian offspring of the parent economic professional society of chemists, the Institute of Chemistry of Great Britain and Ireland, and by the legal formalities preliminary to actual incorporaiton of the American offspring as the American Institute of Chemists. The meeting was preceded by a dinner attended by over fifty members, after which Dr. H. G. Byers, president, announced that the proposal to change the name of the society from 'Institute of Chemistry' to 'Institute of Chemists,' as more correctly indicating its character and as expressing the fact that in America the appellation 'chemist' was not confined legally to the dispenser of drugs, as is true in Great Britain, had been approved by a mail vote of 77 to 12. On motion duly made and seconded and unaimously approved the change was made and incorporation papers of the American Institute of Chemists have been filed in the offices of the Secretary of State and of the Clerk of the County of New York under the Membership Corporation Law of the State of New York.

"The interest of Dr. Charles Frederick Chandler in the aims of the Institute and his encouragement of their promotion made the dean of American Chemists the first incumbent of a new classification of membership, that of Honorary Member. The American Institute of Chemists, thus testifying to the warm place Dr. Chandler holds in the hearts of American chemists, adds not so much honor to Dr. Chandler as it does to itself in this reciprocal tribute to one whose best wishes are for the success of the Institute."

New Society: The Metropolitan Water & Wastes Society formed by a number of chemists, chemical engineers, and microbiologists in the metropolitan New York area, as a forum for the exchange of technical information and for discussion of professional problems. The chairman is Dr. Sidney Sussman, F.A.I.C., Water Service Laboratories, Inc., 423 West 126th St., New York 27, N. Y. The secretary is Mark M. Luckens, F.A.I.C., 1466 49th St., Brooklyn, N. Y. The membership chairman is Paul De Falco, Jr., Interstate Sanitation Commission, 110 William St., New York 38, N. Y.

New Division: Formed by the Chicago Testing Laboratory, 536 Lake Shore Drive, Chicago, Ill. Known as the Specialties Division, it will undertake problems relating to pulp, paper, metal foils, plastic films, foodstuffs packaging, and chemicals used in paper making and converting. Gene Abson, F.A.I.C., president of the Laboratory, announces that the new division is under the supervision of Arthur C. Dreshfield.

Increase: In sales of apparatus, instruments and supplies of 7.5 per cent in the first half of 1952 over the corresponding period in 1951, is reported by the Laboratory Apparatus and Optical Instrument Sections of the Scientific Apparatus Makers Association.

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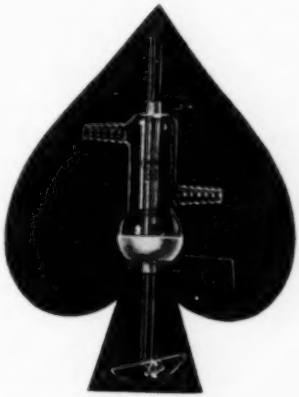

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Research for an Industry

Roy W. Peet, F.A.I.C.

Association of American Soap and Glycerine Producers, Inc., 295 Madison Ave., New York 17, N. Y.

(Presented at the AIC Annual Meeting, May 8th, as part of the General Session on "Chemical Research—Management Viewpoint.")

THIS topic makes it necessary to define the word "industry." Words are funny things and sometimes one person's words do not convey to another the meaning intended.

This reminds me of an amusing experience I had in a former connection. The research department greatly wanted a place where cosmetics and toilet articles could be tried out with girls and women under favorable conditions. The most common description of what we were after are the words, "beauty shop." So we went to the management explaining the need for a "beauty shop" and were turned down. The need was so great that, notwithstanding, we made a second attempt a few months later, but this time our whole presentation was based around the need for an "applied cosmetics laboratory." We got the "laboratory!"

Webster's New International, unabridged dictionary, second edition, gives the pertinent definition of industry:

> "any department or branch of art, occupation or business; especially one which employs much labor and capital and is a distinct branch of trade; as the sugar industry."

That still leaves me a little vague, so for the purpose of this discussion, I am using the word to mean "manufacturing" and what might be termed the "service" type of business. Excluded are distributive and professional groups as well as any type of business not operated for a profit.

Research for an industry is a fascinating subject. It is fascinating because it shows the interplay of the driving forces of our private enterprise economic system.

Business is conducted to make a profit and research is one of the tools to help realize that profit. Mr. Ling Warren, president of Safeway Stores, once told a friend of mine:

"Profits are a phenomenon of business."

He was speaking of all the unknown factors which face every business in terms of tomorrow's problems:

What will taxes be?

What about wage rates?

How about my competition?

Will my customers' earnings hold up? etc.

You can make your own list of unknowns, but it will only confirm the fact that a final year-end profit is a "phenomenon" of business. Ameri-

can business management is not stupid and knows that it must look to that final profit. If some activity is not producing, sooner or later it is slashed out—eliminated, otherwise the business is surely slated for failure.

When we look at research for an industry, the same principal of having to pay its way holds true though, of course, in a broader, more general sense. Industry research has been productive. This is proven by the fact that nearly every industry which starts a research program continues it.

Nearly every manufacturer carries on some technical research, but in addition to this there are some fields of work where it is advisable to join with others in the same industry to carry on certain types of research. The reasons which lead to this cooperative activity usually narrow down to about eight as follows:

1. Inter-industry Competition. Other industries threaten a particular industry and make an industry research program advisable.

In the textile field—cotton, wool, silk, rayon, nylon, Orlon, and Dacron all compete among themselves. In plastics, there is competition of one with another among the various kinds, but likewise plastics are competitive with leather, with cloth and even with metals. Oil, coal and gas are all competitive with each other. In transportation, the air lines are competitive to railroads and to boats. The competition between trucks and railroads is old and bitter. The slogan, "Reach for a Lucky instead of a Sweet", created a problem for the candy industry. Many other inter-industry competitive examples can be cited and a great deal of industry research results.

One interesting example was written up in the *New York Sunday Times* recently. The brick industry, which faces inter-industry competition with wood, stone, stucco, concrete, cinder blocks, and other materials in the building industry, carried on a successful industry research program and has now developed a brick with holes in it like cinder blocks. It can be plastered on directly and is air insulated so it can be used as the outside wall itself instead of being used as a facing.

2. A Marketing Problem may exist which has no particular relation to any other industry.

This could be an oversupply with new uses or markets badly needed. Coal has faced such problems and some of the new chemical uses of coal are at least a partial answer. A product may need industry research to establish facts to serve as a basis for gaining recognition through advertising or sales promotion.

A case in point is the research program just started by a group of distributors of water softeners for home use. Home owners are not aware of the advantages of soft water (many have never experienced it) and it is hoped that a wealth of practical ad-

vantages can be proven which will assist sales for the industry.

In our own Association, glycerine has carried on a research program for twenty-five years. It was started to expand the market but has served many useful purposes. At various times, an oversupply was a strong reason to continue the program.

In many cases, whatever the reason for which the program was started, the results have served richly in terms of furnishing material for advertising, sales promotion and public relations. The outstanding campaign of the American Meat Institute is a fine example of this end result.

3. New Facts May be Needed for protection against harmful legislative or administrative action. Quite often legislative problems may face an industry and research material is needed to present a true picture of the consequences. For instance, restrictions on margarine were in effect many years and facts were needed to show margarine in a favorable light. This research was carried on and a favorable reversal obtained from Congress.

Industry research was carried on by the Welding Industry to obtain data which was used to get welded joints approved in construction under building codes. Insecticides and disinfectants have had industry problems of a legislative nature and have used research to help get favorable action.

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The impact of war often brings problems to industries which can best be handled by industry research and presentation.

4. Many times an industry faces primarily an **Intra-Industry Problem** and joint cooperative research work is the logical and best procedure to arrive at a sound agreement among members of the industry.

Industry research programs on standards, specifications, and evaluation are common examples of such objectives. Typical, is work reported by:

American Gas Manufacturers Association

Automobile Manufacturers Association

Glass Containers Institute

Metal Lath Manufacturers Association

National Association of Frozen Food Packers

National Lubricating Grease Institute

National Paint, Varnish & Lacquer Association

and many others.

5. Sometimes Problems in Connection with Raw Materials are the reasons for industry research. Such is reported by:

Cigar Manufacturers Association—on certain scarce types of tobacco.
American Dehydrators Association—on the growth of alfalfa, their raw material.

6. Utilization of By-product was the subject of research by:

Distillers Feed Research Council—who report an outstanding success with 99 per cent of spent stillage now recovered and sold for animal feed.

7. And next, but not least, is the basic objective of **Product Improvement.** This is a most important reason for industry research and is carried on by most industries which do research. Just starting with the alphabet, the names of those who do research for product improvement is indicative and impressive:

American Cotton Manufacturers Institute
American Meat Institute
American Iron & Steel Institute
American Gas Association
American Paper & Pulp Association

In some cases, particularly industries which make highly advertised manufactured articles where a single competitive advantage may be the difference between success and failure, research is closely guarded and highly protected with patents, and product research is more an individual company operation than an industry group activity. Breakfast foods, toilet articles, cosmetics, automobiles are types of such products. But even here, industry research has a place. For instance, the Toilet Goods Association has carried on a research program for several years to set standards of purity for raw materials for cosmetic use.

8. Economy is, of course, a factor in every reason for industry research. It costs less for the work to be done once for the good of all than for each of several companies to do it, repeating each others' activities. It costs less if spread among a lot of companies than if the entire burden must be carried by one.

One interesting example of economy being the main reason for industry research is in the hotel field where the best method of cleaning carpets to avoid unnecessary damage was the objective of a research program. It is a fine example of inter-industry cooperation that they were joined in this program by the Carpet Manufacturers Institute.

For an industry to carry on a program of technical research, it must be organized in some manner. The trade association in this country is the usual means of organizing. Through a trade association, an industry may do a number of things useful to its members, to government and to the public. These include—among other

things—work on raw materials and finished goods statistics, market anaalysis, industry promotion or advertising and technical research. Consequently, when we want information on research by an industry, we naturally go to its trade association.

When I was asked to make this talk, I wanted more information than I had on industry research, so I prepared and sent out to all trade associations a simple, little one-page questionnaire. The answers to that questionnaire give a good and an impressive picture of industry research.

The replies may be divided into seven classifications and then an arbitrary, and sometimes difficult, decision made on the classification of each trade association. These classes are as follows: (and the first three are the ones we will examine).

1. *Producers of Basic Raw Materials or Commodities*
   a. Sugar
   b. Coal
   c. Steel
   d. etc.
2. *Producers of Manufactured Articles*
   a. Automobiles
   b. Corn flakes
   c. Machine tools
   d. Toilet goods
   e. etc.
3. *Service Groups — Including Transportation*
   a. Hotels
   b. Restaurants
   c. Hospitals
   d. Laundries
   e. etc.

The next four are not included as industries in this paper.

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4. *Inter-Industry Groups*
   a. American Society for Testing Materials
   b. American Standards Association
   c. U. S. Chamber of Commerce
   d. National Manufacturers Association
   e. etc.
5. *Professional Groups*
   a. American Dental Association
   b. American Medical Association
   c. Controllers Institute
   d. etc.
6. *Distributive Groups*
   a. Wholesale and retail outlets in various fields.

There is no question that these are industries but they are not logical groups to carry on technical research and have been eliminated from this study for that reason.

7. *Non-Industrial*
   a. Finance Groups
   b. Advertising Groups
   c. Real Estate Groups
   d. etc.

Qualified replies were received back from 194 associations. Of the 194, 40 replies were from the four groups or types of associations which I said would not be covered in this presentation. Seven of the forty did report technical research; they were:

1. Society of Baking Engineers—Baking research.

2. Connecticut Florists Association—Plant disease.

3. Society of American Florists—Plant disease.

4. Lumber Dealers — Building plans.

5. Soft Water Service Operators—Advantages of soft water in home.

6. National Council for Stream Improvement — Stream pollution problems.

7. Ohio Association of Insurance Agents—To reduce fire hazards.

In the three types or classes, which I have defined as industrial, 154 replies were received and 77 per cent of them do conduct technical industry research. Many conduct marketing research as well but these figures deal only with chemical and physical or allied types of research.

When we look at this by the industry classifications that I have just described, we find some interesting and I believe new data. Among the "Basic raw materials or commodity" associations—97 per cent conduct technical research. It makes pretty good sense that this type of industry would find cooperative or joint research work desirable and profitable. Its product problems are broad and common to all member companies. It is frequently faced with problems of competitive industries, legislative and public relations situations.

The "manufactured articles" group shows 73 per cent carry on research. Its problems are apt to be somewhat more restricted than the basic groups and there is a greater need for more intensive individual company research.

The service type of industry shows 63 per cent conduct research. This type of industry would naturally find less inducement to conduct technical research than either of the two preceding groups. It is more surprising that the ratio is as high as it is but a glance at the list of those conducting research will show pretty good reasons why they are doing so. They are hospitals, hotels, railroads, linen supply, magazine publishers, diaper services, rug cleaning, etc., and obviously application research is of primary interest. Of those associations not reporting research activity, some are local in membership. The questionnaire had nine questions. The first of these was:

"What was or is the purpose of this research?"

The outstanding reason was to improve the quality or performance of the product or commodity—78 per cent. The next two reasons were fairly close:

Improvement of manufacturing processes or procedures to reduce cost or increase output—52 per cent.

Research on application or uses to increase consumption or protect existing markets—49 per cent. Other

reasons fall far below these levels at 13 per cent or less. Of these, the utilization of by-products is more often a reason for research in the "basic commodity" groups (31 per cent) than in the "manufactured article" group which shows only 7 per cent for this reason. The "Service" group shows no research for this reason, and that is entirely logical since they do not have products or by-products. The second question was:

"What year was the first industry research program started?"

Over half, 58 per cent of those replying, have started since 1940—39 per cent since the end of World War II in 1945.

By industry, the "basic" group shows the oldest pattern of industry research with 27 per cent of the industries reporting in this class carrying on research before 1930. This compared with 24 per cent in the other two groups. In 1941, the National Association of Manufacturers published the results of a survey they had made among the 113 National Manufacturing Trade Associations which were then members of the National Industrial Council. Of these they reported 35 associations or 31 per cent carry on research activities. This group would compare with our first two groups where, in our survey of 1952, 80 per cent of the 130 associations replying conduct technical research.

They show 10 per cent of the associations had research laboratories of their own in 1941; we show 23 per cent in 1952. This confirms the speed-up of starting research programs among industries which has occurred within the last ten years; also the serious attitude toward industry research in the installation of Association-owned laboratory facilities.

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The third question was:

"Has the industry continued some research activity subsequently?"

Eighty-one per cent reported their programs were continuous; 18 per cent intermittent; one per cent discontinued. The reason for the discontinuance was the satisfactory solution to the special problem for which the research was started so there is no negative aspect to this discontinuance.

By industry, the "basic" group shows continuous research by 94 per cent of those replying compared to 75 per cent in "manufactured articles" and "service" groups. The fourth question was:

"If your research expenditure is published, approximately what is the current annual expenditure?"

Understandably, a great many do

not report their expenditures but of those who did reply to this question 22 per cent spent $100,000 or more per year. Sixteen per cent reported spending $500,000 or more per year. By class, the "basic" group shows relatively much higher expenditures with 40 per cent spending $500,000 or more per year compared to 13 per cent or less in the other two groups. It is understandable that industries dealing with basic raw materials or commodities find more need for broad industry research which necessarily entails fairly heavy expenditures. The fifth question was:

"Does the Association own or operate any laboratory facilities of its own?"

Twenty-one per cent of those answering this question do own their own laboratory, and this varies only slightly by the three groups. The sixth question was:

"Is the above research carried on: a. in Association owned or operated laboratory? b. In outside consulting laboratories? c. In college or educational institutions under grants, fellowships, etc.? d. In member company laboratories?

Industry has benefited tremendously from research, often basic, carried on by the government and by colleges without fellowship support, but usually if an industry starts a research program it pays some one to carry it on. The work of the U. S. Bureau of Standards is only one example of valuable government research. The highest percentage reported schools or educational institutions under grants, fellowships, etc.—41 per cent. The second highest was outside consulting laboratories — 31 per cent. This was followed by work in member company laboratories—17 per cent and work in the industry or Association-owned laboratory—11 per cent. Since there were 21 per cent of the industries reported owning their own laboratories and only 11 per cent reported work carried on in their own laboratories, it looks like we have a missing ten per cent. The difference is largely accounted for by the fact that the percentages on each question are based on the number replying to that question and the base is different on these two questions. However, there are several associations reporting owning laboratories but which report research work being done elsewhere and not in their own laboratories. I don't know the answer on the "why" of this.

By classes, the basic group shows less industry research in member company laboratories than in either of the other two groups and the "service" group shows the highest concentration in outside consulting laboratories, which is understandable. All three groups show an average use of slightly more than one and a half of the four places where research work may be carried on. The seventh question was:

"Approximately how many companies support this research program?"

Nearly half—44 per cent—report 100 companies or over contribute to the program. This is, of course, dependent to a great extent on the number of members in an association. In the "basic" group, this was 57 per cent but in the "manufactured articles" group, dropped to 28 per cent. The "service" group shows the highest membership contribution with 87 per cent showing 100 members or more supporting the program. This undoubtedly is due to the fact that the "service" type of industry is largely a retail type of business and consequently has a large number of association members. The eighth question was:

"What has been the principal industry benefit accomplished by this program to date?"

This so closely parallels the reasons for setting up the industry research, that I will not try to cover the detail on it. The ninth question was:

"General comments—pros or cons on industry research."

On general comments, 16 industries reported that the greatest advantage of industry research was that it was more effective, comprehensive and economical. Six industries reported that industry research was essential to progress and maintenance of competitive strength. Five industries reported governmental and public relations were their principal benefits.

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As to the disadvantages, nine industries reported difficulty in financing or maintaining interest in segments of the industry and four reported that progress was slow in industry research.

In closing, I would like to say that one cannot help but be impressed with the work trade groups are doing through their trade associations in technical research. The field is growing in number, in expenditure and in laboratories owned. There is no attempt here to give credit to the very great many trade associations that have reported through this survey thrilling records of success. Examples have been mentioned but many other associations should have been mentioned for the results they have accomplished.

Sales Engineer: For U. S. Stoneware Company of Akron, Ohio, Frank J. Kiernan, whose headquarters will be in the company's office at 60 E. 42nd St., New York 17, N. Y. The announcement was made by Howard Farkas, F.A.I.C., executive vice-president and general sales manager of U. S. Stoneware Company.

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Honored: Dr. Crawford H. Greenewalt, F.A.I.C., president of E. I. du Pont de Nemours & Co., Wilmington, Del., who has been chosen to receive the Chemical Industry Medal of the American Section of the Society of Chemical Industry. The medal will be presented at a meeting of the American Section following a dinner in the medallist's honor at the Waldorf Astoria Hotel, New York, N. Y., on October 31st.

Harry B. McClure, F.A.I.C., vice-president of Carbide & Carbon Chemicals Company, and chairman of the American Section, will preside at the award meeting. Dr. Robert C. Swain, F.A.I.C., vice-president of American Cyanamid Company, and recent chairman of the American Section, will present the medal.

Dr. Greenewalt has been president, chairman of the Executive Committee, and a member of the Finance Committee of du Pont since January 19, 1948, the peak in a career begun in 1922 when he joined the Philadelphia Works of the company as a chemist. He received the B.S. degree from Massachusetts Institute of Technology in 1922; the honorary D.Sc., from the University of Delaware in 1940, and the Honorary D.Sc. from Northeastern University in 1950.

Extended: The period during which the American Board of Clinical Chemistry, Inc., will review applications for Certifications of Clinical Chemists without examination, to December 31st. Application forms may be obtained from Dr. Jos. W. E. Harrisson, F.A.I.C., secretary-treasurer of the Board at 1921 Walnut St., Philadelphia 3, Pa., upon forwarding the fee of $3.00 and the name of the applicant as it is to be recorded.

Kalinga Prize: Awarded through UNESCO, May 28th, to Prince Louis de Broglie, Nobel Laureate, for the best work in the field of popularization of science. This annual prize of 1000 pounds sterling is made possible by M. B. Patnaik, Indian industrialist.

Appointed: Foster D. Snell, Inc., New York 11, N. Y., as official laboratory of the Association of Food Distributors, Inc.

Safety and Hygiene in the Plant

Dr. Lawrence T. Fairhall, F.A.I.C.

Department of Public Health, Yale University, New Haven, Conn.

(Presented at the AIC Annual Meeting, May 8, 1952, as part of Concurrent Session E, "Industrial Safety and Hygiene.")

The primary chemical industry has a good safety record, but the consumer industries still need more information about the toxic properties of the materials they use.

THE casual visitor to a chemical plant engaged in, let us say, the manufacture of dyestuff intermediates is confronted with several two or three story buildings of unimposing appearance, yards cluttered with piles of drums and carboys, tanks and what appear to be covered wooden vats, while a maze of piping runs overhead. A distinctive chemical smell permeates the atmosphere. As one walks through the plant relatively few workers are visible. The clatter of machinery characteristic of some manufacturing plants is absent. One or two men are hosing down the concrete floor from which the smooth surface has disappeared leaving the underlying pebbly material exposed. A few quiet motors are slowly turning some machinery. Here and there are dripping filter presses which have the appearance of age and convey the impression that they should have been retired years ago as pieces of useful machinery. Further observation reveals the fact that several quietly moving employees are very actively engaged in the careful regulation of temperatures and pressures and in accuracy of timing, as indicated by their constant attention to gauges and controls and in the recording of data. Great kettles reaching upward and surmounted by slow moving mechanical stirrers appear to embody latent power, and in fact the alternate waves of heat, jets of steam, the occasional appearance of a cloud of brown fumes and the inescapable permeating acrid smell give one the feeling that he is walking across the crater of a potentially active valcano. One has the distinct impression that here indeed must be the most dangerous of trades.

It is of great interest therefore that, while the chemical industry manufactures vast amounts of dangerous materials, many of which are highly toxic substances, the incidence of accidents and disability is not great in comparison with other industries. The injury-frequency rates for 1949 in the chemical industry are less than one-fifth that of the lumber industry (our most hazardous occupation) and less than one-half that of the food prod-

ucts industry, according to data of the United States Bureau of Labor Statistics. Figures from this same source covering the first nine months of 1951 (the most recent data available) show a similar pronounced difference. The number of injuries per one million man hours for the first nine months of 1951 were, for instance, 108 for the logging industry, 60 for boat building and repairing, and 47.2 for beet sugar refining. On the other hand, the rates for the synthetic fiber industry were only 1.7, for synthetic rubber 1.8, and for the explosives industry 3.3.

In the manufacture of industrial chemicals—with a total employment of 121,412 (1949), the number of disabling injuries was 2,147 while death and total disability amounted to four tenths of one per cent of this figure. In a group of smaller size and completely different type of occupation, namely, that of brewing industry, with a total employment of 69,185 or somewhat over half that of the industrial chemicals industry, the number of disabling injuries was 3,961 while those resulting in permanent disability and death were one per cent of this figure. In other words, the brewing industry with about half as many employees as the chemical industry had about five times as many permanent disabilities and deaths. The number of total days lost due to injury in the manufacture of industrial chemicals was 14,060 in 1949, in comparison with the total of all manufacturing of 1,436,194 days, or slightly less than one per cent of the total of man days lost.

The relatively good showing made by the chemical industry in the face of the extremely hazardous type of occupation is undoubtedly due to the ready cognizance, awareness and intuitive judgment of the chemist based upon early training and years of experience with laboratory experimentation. Consequently plant design and equipment have benefited from this knowledge. Parallel with the growth of the industry there has been an increasing attempt to enclose operations so far as practicable from start to finish and to use ventilation controls where the evolution of noxious products may be injurious to health.

Safety in the Consumer Industries

While the primary chemical industry has in general a lively appreciation of the hazards of its various products, this frequently is not true of the consumer industries, or secondary users. The Manufacturing Chemists Association has for several years carried out a campaign of labeling and information service to dispel this fog of ignorance and to aid in directing the intelligent use of the products of the chemical industry under safe conditions. This service deserves the greatest encouragement and support. A great many chemical substances in current use are poisons of

various degrees of virulence. One has only to turn to the field of so-called economic poisons — certain insecticides, such as the organic phosphates, nicotine sulfate, or methyl bromide and hydrogen cyanide—to be apprehensive concerning the quantities being manufactured and the widespread use of these substances. Solvents, such as benzene and carbon tetrachloride, are fairly widely distributed and many similar toxic substances are in current use by small processers and the public in general.

While the chemical industry is well aware of the toxic qualities of its ordinary chemical products, the rapid expansion of the industry that has now been in progress for some time, particularly in the field of fine organic chemicals, has resulted in the manufacture in quantity of many substances of unknown toxic effects. More and more of these products are called for in the drug, the insecticide, and the plastics industries. Some of the newer products are more or less physiologically inert. Others are active skin poisons, or produce injury on inhalation of the dust, mist, fumes or gases which accompany their manufacture.

Determination of Toxicity

Unfortunately the determination of toxicity frequently calls for long and extended experimentation. Before the toxic effects of a substance can be firmly established a number of avenues must be explored. It is relatively easy to define the acute toxicity—usually referred to as the LD_{50} —or the dosage which kills fifty per cent of the given type of animals used for experimentation. For many practical purposes this information is sufficient. However, if workers are to suffer contact with a substance even in small amounts over an extended period of time, it is necessary to know much more about the physiological properties of the material than are evident from this type of rapid testing. Many substances which do not produce immediate physiological response may, in the course of time, act as severe poisons. Of the inorganic substances, lead and manganese, radium and silica come under this heading. With each of these there is a definite time-lag between actual contact and onset of symptoms. Lead poisoning may become evident only after several months following exposure to a small amount daily; manganese may require two or three years and silica may require as much as

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twenty years before evidence of lung damage occurs. It is necessary therefore to consider three types of effect of contact with toxic substances, namely, acute, chronic and incipient poisoning.

This delayed response is not so common with organic substances. Physiological effects are often produced almost immediately, or within a few hours, with these substances, although exposure to small amounts over prolonged periods may produce damage of another type (different from that of acute poisoning), as in the case of the anemia produced by benzene, or the bladder tumors produced by aniline or by *B*-naphthylamine. In the evaluation of toxic effects it is therefore necessary in some cases to study a given substance over extended periods of time and to use the resources of chemistry, physiology and pathology in order to be assured of its innocuous character.

Incipient poisoning is by far the least serious of the various unhealthy conditions brought about by continued exposure to small amounts of a toxic agent over a long period of time, but none-the-less it is to be reckoned with in industry. Illustrations of this are the headaches, sometimes accompanied by dizziness and nausea, produced by contact with low concentrations of carbon monoxide from producer gas furnaces, or the somewhat similar effects arising from exposure to nitroglycerin. Constant contact with small amounts of an injurious substance may not result in any of the ordinary signs or symptoms of poisoning, yet may result in obvious ageing of the worker beyond his years, as indicated by Oliver in the case of antimony trioxide workers.

In the chemical manufacturing industry and particularly in the consumer industry constant exposure to even minute amounts of some chemical substances may constitute a health hazard of unforeseeable proportions and, while the record is good in most cases, it doubtless can be improved. Hazards may exist in a plant in unsuspected places and intelligent supervision should be so directed as to uncover and rectify such situations.

Since 1937 the American Conference of Governmental Industrial Hygienists has had a committee which has concerned itself with the so-called threshold limits of toxic substances. This committee has gathered together, screened and carefully considered data regarding the amounts of material existing in the atmosphere as dusts, fumes or gases to which a man (working eight hours a day and breathing within this time an estimated ten cubic meters of air) may be exposed without injury to health. A table of such threshold limits has been drawn up and is published annually. It does not seek to impose on industry a fixed formula of working conditions. Indeed the values are revised annually, as more and more

data become available. It is intended only as a guide and to this end has been successfully applied over a number of years. This list of some 150 chemical substances represents basic organic and inorganic material.

Unfortunately it is impossible to accumulate toxicity data as rapidly as new substances are made available commercially, or new processes or methods of manufacture are devised for materials that formerly existed only as laboratory curiosities. As a consequence, a few instances of mass poisoning have occurred in industry and furthermore in some cases substances have been distributed for public use without adequate knowledge of their potential toxicity. Time and again substances thought or assumed to be innocuous have been revealed as health hazards. It is just as important in some respects therefore to know the toxic qualities of such substances, as it is to know their physical and chemical properties.

Even though a substance is revealed as possessing a high degree of toxicity, that fact may not necessarily interfere with its usefulness or application. Some extremely poisonous substances are in common use and are manufactured safely in large quantities. An illustration of this may be recallled in the case of lead tetraethyl, which is highly toxic, yet which is manufactured in great quantities under healthy conditions and which is of course in widespread use by the public.

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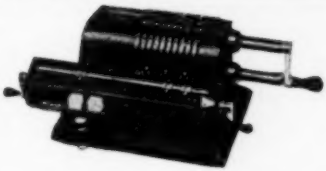

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Accidents

The question of accidents does not enter into this discussion. Safety engineers are in general especially alert to anticipate accidents and to forestall them by appropriate safety measures. In this they have the benefit of several agencies and organizations specifically concerned with safe practices in industry. A bill (S. 2714) is now before the United States Senate, presented by Senator Murray, which proposes specific assistance to the States in furthering safety in industry. However, in spite of wise design and safeguards of all types, there will always be accidents as long as there

are human beings. It should be noted that the achievements of safety engineers are outstanding in industry in general and the chemical industry has benefited in common with other types of manufacture in this respect.

Aerial and Contact Contaminants

Safety of another kind and differing from that of mechanical safeguards and adequate planning enters into chemical manufacture with reference in particular to the inhalation of aerial contaminants and skin contact with active poisons. There are two measures which can effectively assist in improving the health of chemical workers, namely (1) to secure more adequate toxicological information concerning the newer products of manufacture, and (2) careful control, in the light of this information, concerning the exposure of the individual worker either to inhalation of the dust, fumes or gas, or to direct skin contact with these substances.

Improved working conditions and as a consequence, a healthier environment can be attained by finding the kind and amounts of injurious aerial contaminants in the plant, measuring their concentrations and taking appropriate measures to reduce the concentration level below that known to be harmful. The larger industries maintain an industrial hygiene staff to seek out such dangerous areas or conditions and to devise means of controlling contamination. Smaller plants, or plants using only one chemical in quantity cannot afford an industrial hygienist with his complement of special instruments for the detection and determination of contaminants and the special laboratory facilities for investigating minute amounts of toxic materials. However, it should be pointed out that with only one or two exceptions all the States have industrial hygiene units operating either under the health department or the labor department. These units are staffed with industrial hygienists and equipped with the necessary instruments for sampling and analysing the atmosphere for gases, fumes and dusts, and are provided with chemical laboratories for special investigations. A plant survey can be made on request; any unsafe condition can be uncovered, and appropriate recommendations made for the elimination of toxic hazards by proper design of equipment and the removal of dangerous aerial contaminants by adequate ventilation.

The toxicological evaluation of a given substance, however, can be entrusted only to a laboratory especially equipped for this type of investigation. Toxicity determinations often require not only equipment of a highly specialized type, but also the resources of departments of physiology, pharmacology and pathology in addition to facilities for chemical investigation. Extensive animal experimentation is required and relatively few

centers are provided with all these facilities.

Practically any issue of the current chemical trade journals will reveal new substances which have become available in commercial quantities. Perhaps the majority of these substances can be produced by the usual technical methods with no more danger to health than occurs with many other well-known products. However, an occasional substance will crop up with unwelcome physiological properties and may unfortunately require the reaction of a human guinea pig to draw attention to these properties. Again, the substitution of a less toxic substance for more toxic material may lull users into a false sense of security. For instance, three recent deaths, one each in Massachusetts, Indiana and New Zealand, occurred together with several near fatalities from exposure to the vapor of trichloroethylene which had replaced the more toxic carbon tetrachloride as a degreasing agent. Within the past year deaths have been reported from skin contact with 2-aminopyridine and with parathion; several deaths in England have occurred from contact with dinitro-*ortho-cresol*, two deaths were reported in Germany from dichloroethane poisoning and a death in each case in this country from ethylene chlorhydrin, dichloroethene, and monobromomethane, to mention but a few of the impressive number of fatalities that have recently arisen from contact with various chemicals—not taking into account the much larger number of near-fatalities and cases of chronic poisoning from these sources. The bulk of these poisonings occurred in the consumer industries, or in public use, and clearly indicates the need of indoctrination necessary for the safe use of certain of the products of the chemical industry.

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Graduate Student: Joseph M. Cahill, A.A.I.C., at Purdue University, West Lafayette, Indiana. He received a Student Medal from the Niagara AIC Chapter in 1951, when he was a senior at Niagara University.

Appointed: Donald V. Magnuson, A.A.I.C., as director of research and development for Labline, Inc., 217 N. Desplaines St., Chicago, Ill. He was, for over four years, manager of research for Precision Scientific Company. He is a graduate of Armour College of Engineering.

Elected: Dr. Foster Dee Snell, F.A.I.C., consultant of New York, N. Y., as Fellow of the Royal Society of Arts, London, England.

Graduate Student: Phillip Chan, A.A.I.C., who will enter Columbia University on an assistantship in chemistry this September. He received a Student Medal Award from the AIC Chicago Chapter this June.

New Address: J. B. Clitheroe, M.A.I.C., is now located at 1445 Gilmer Drive, Salt Lake City, Utah. He was formerly associated with Oldbury Electro-Chemical Company of Niagara Falls, N. Y.

Invited: Harold Becher, F.A.I.C., director of research and engineering of the Dellenbarger Machine Co., Inc., of New York, N.Y., to attend the President's Conference on Industrial Safety, in Washington, D. C.

Speaker: Dr. Gustav Egloff, Hon. AIC, before Illinois Society of Certified Public Accountants and The Robert Morris Associates, Chicago, Ill., on "The Impact of Inventive Genius," April 22nd.

Purchased: By Monsanto Canada Limited, the outstanding common stock of Barringham Rubber and Plastics Company Limited, Oakville, Ont., manufacturers of vinyl chloride plastic and plastic-coated fabrics.

Books on Chemistry —the Publishers' Viewpoint

Fred P. Peters

Vice President and Manager, Book Division, Reinhold Publishing Corporation, New York 36, N. Y.

(Presented at the AIC Annual Meeting, May 7th, as part of Session C, "The Situation in Chemical Literature.)

THE publisher's point of view is necessarily the least popular of all points of view for this problem. For here is the culprit who is personally responsible for all the informational inadequacies, all the publication delays, and all the exorbitant prices that are sometimes said to be the outstanding characteristics of books on chemistry today. What can he do except to squirm, mumble an apology or two and slip away as soon as possible, still wearing his disguise?

The first thing he can do is to be grateful for this chance to present his point of view. While I cannot presume to speak for the other publishers of books on chemistry, they would all agree that our attitude toward the problem is one of real concern coupled with a powerful desire to find solutions that are satisfactory to you who read and write our books. So the second thing we can do is not to cross to the other side of the street but rather to explore with you the problem and how to solve it.

There are two broad classes of chemistry books—(1) teaching texts and (2) advanced works for graduate and professional reference. For teaching texts these might be most simply summarized as a call to the publishers for texts that are (1) lower-priced, (2) less bulky (these two wishes are doubtless related), (3) devoted more to fundamentals of a subject than to myriads of facts and specialized examples, and (4) pedagogically more functional than ever before.

As to treatises or advanced works, the field seems to want constantly more specialized books, more up-to-date than they have been in the past and, of course, at lower prices than those prevalent today.

And here is what the field is getting from us publishers: In answer to your prayer for lower-priced books we are forced to offer you both textbooks and advanced works at generally higher prices than ever before. Teaching textbooks are definitely more functional than in the past and are developing your required emphasis on fundamentals, and in the realm of advanced works publishers have matched the sub-subdividing of chemical fields with increasingly specialized titles. However, it would appear that the proportion of specialized works may have to decline for the problem of producing them at a reasonable price is nearly insuperable. And the

question of "up-to-dateness," the lack of which has frequently been charged against scientific and technical books, has been intensified by the increasing delays that seem to be associated with the more specialized titles.

What can we do to improve our price structures and our up-to-dateness in view of the opposing factors (especially increasing specialization of graduate works) that are pressing so hard upon us? First, let us look at the causes of the trouble before we attempt to find the possible cures. It is even likely that no really fundamental cure may be available unless some of our most precious habits (those of both publishers and authors) can be broken.

With teaching texts, specialization is not such an important factor but publishing costs are a very great factor indeed. Because of the intensive competition that exists for adoptions in each subject, publishers' prices have to be held so low that there is scarcely any margin of profit left for them on some titles. The answer to the textbook problem is clearly one of reduction of production costs and, as Mr. Curtis Benjamin of the McGraw-Hill Book Company recently suggested in an article in "Physics Today," this may come only through cooperative research on the mechanics of book production, to be undertaken and supported by the book industry as a whole.

The problem of advanced works of the type which professional chemists use constantly and which even undergraduates refer to occasionally, is the one that is desperately crying for solution. The bases of this problem are the combination of an expanding body of knowledge, increased specialization, and higher publishing costs. The specialization phase and what it is doing to the timing of our books and to their sales prices deserves comment. The publishing industry is today producing higher-level titles on chemistry at the highest rate in history. The number of publishers serving the field has not significantly increased in the last five years. Nor has there been, either, any trend toward considerable duplication of subjects among the publishers at these higher levels. Therefore the increase in chemical title output must be caused by the vast increase in the total body of knowledge pressing for publication, which for practical purposes emerges as an increase in the number of chemical subjects on which books are being published. This is exactly what users of books and authors of books have always sought. However, in insisting on its continuance, the field may possibly be killing the goose that laid the golden egg. Here is why:

As many of you know, the average sale for a good technical or scientific treatise is in the neighborhood of 5,000 or 6,000 copies over a period of years, not 20,000 copies or 50,000

copies as prospective authors often fondly believe. These figures are the averages of many titles which will sell around 4,000 copies, a few that will sell between 4,000 and 10,000, and a *very few* titles which will sell in excess of 10,000 copies. Sales of only 4,000 copies are considered to be the bare minimum by some publishers and well below the minimum by others. Publication of titles that will sell only 4,000 copies is possible only by applying prices to them which are in the neighborhood of 2 cents per page, which, as Mr. Benjamin pointed out in his paper previously referred to, is now almost twice as high a price level as existed fifteen or twenty years ago. But publishers are increasingly being asked to consider the issuance of highly academic and increasingly specialized works whose sales potential no one but the most optimistic author would put beyond 2,500 or 3,000 copies.

Many of these specialized books, particularly in the field of organic chemistry, involve, in addition, extensive use of structural or cyclic formulas, and equations including them. The result is that the cost for setting type alone on such books may be twice as high on a per-page basis as for less academic works. Now when these high costs can be spread over only one-half as many copies, because of the strictly limited sales potential in specialized fields, the per-page prices of such books may approach three or four times those of titles of simpler typography and broader appeal.

Finally, on top of all this, many of the more specialized works are also among our bulkier products, and if prices of 3 cents or 4 cents per page have to be applied to 1,000-page books we are faced with the awful prospect of a $30.00 price for a single volume (or perhaps a $35.00 price for a 2-volume set). There is an alternative, equally dreadful to the publisher, and that is of pricing this book at $20.00 and charging the losses that he must take on it to improvement in his prestige. Many of the publishers considering this alternative already have prestige running out of their ears and do not regard an increase in its flow as a project worthy of such great investment.

In general, the technical and scientific book publishers are being offered more manuscripts than they or the printing industry can handle with their present staffs in reasonable periods of time. The result of this sort of "publishers' market" for manuscripts means that the more specialized, more academic, more costly, less marketable manuscripts are not finding publishers readily, if at all. We do not see a solution that will lead to their publication on present bases, for so long as publishers' and printers' schedules are filled with reasonably attractive projects, they will not, naturally, replace them with unattractive projects.

The more technical a book is and the bulkier it is, the longer it takes to process. The increasing specialization has been accompanied by more "difficult" and bigger treatises and has thus also extended the average time required to process and produce a book from manuscript to published volume. Whereas several years ago it was possible to produce the average scientific and technical book in four or five months, authors and their eager public must now wait at least six months and in many cases over a year before their written words see the light of day in printed form. Even overlooking the effect of this on the author's nervous system and the publisher's costs, how seriously out of date the information in the book must often be when it is presented to its users from one to two years after the author first placed it in his manuscript!

So, in general, we believe that in the absence of drastic changes in book production methods or financing, we may have passed the limits of specialization that can be practically applied to technical book production from now on.

So much for specialization. Increased book production costs, up to more than double the levels of several years ago, are the result of exactly the same things that have raised the prices of everything people and industries buy today. Printers' wages, paper and engraving costs, clerical and management salaries are approximately twice what they used to be. I am sure it is no mystery to you and therefore it does not require further explanation, that technical book prices also must have to be nearly twice as high as in days gone by. I would like to suggest a realistic solution for this but I do not have one, not even a political one, although there may be some among you who believe you do have the latter.

Actually, prices on technical and scientific books across the board have not increased as much as have the prices of most commodities in, say, the past fifteen years. Whereas the prices of automobiles, clothing, foods and most other finished products have increased about 100% in that period, advanced technical and scientific book prices have gone from about 1¼ cents per page on the average to approximately 2 cents per page, or an increase of about 60%. (The increase in *textbook* prices has been much less even than that.)

The publishers have struggled to keep their prices down even though their costs have mounted at a frightening rate. Today the average net profit after taxes in technical and scientific book publishing is believed to be in the neighborhood of 6% of net sales volume. This is hardly an exorbitant figure, especially in view of the colossal investments in inventory often required (for example, printing 5-year stocks) to reduce unit manu-

facturing costs to the lowest level. Other industries serving the manufacturing fields are accustomed to earning at least 10% net profit on their sales volume before taxes.

In any case the technical book publishers have always sincerely felt that they were providing packaged information, rather than a physical commodity like a chair or a toaster or fountain pen or a dozen eggs. Thus, while an 800-page technical book, 6 inches by 9 inches by 1½ inches thick printed on ordinary paper without glamorous illustrations in color, and bound in a plain cloth cover looks like anything but a bargain at $15.00, it may actually be worth hundreds or even thousands of dollars to many purchasers. To put it another way that will not increase my popularity with consultants, such books provide a sort of local, on-the-job consulting service for their users, which could not be bought at many times the price in any other way. Indeed, proof of this is found in the fact that consulting chemists themselves could not provide the outstanding service that they do without their own substantial libraries of technical and scientific books. (I hope now that I am partly restored to their good graces!)

Book prices are also related to the length and difficulty of processing the manuscript. A 1,000-page book will have to cost more than a 500-page book, though perhaps not twice as much. Manuscripts that are heavily illustrated, full of tables in small type, or replete with cyclic formulas will have to be proportionately higher-priced because of the terrifically high typesetting and engraving costs involved. And of course authors whose manuscripts are poorly organized or badly written (and there are a few), or who make extensive changes after type has been set, are responsible for extra costs that are usually reflected in higher prices for their books.

And finally, book prices are most intimately related to the sizes of editions—the number of copies that can be printed and sold .As I pointed out earlier, the more specialized a book is, the narrower will be the market it can enjoy, the smaller will be the number of copies over which the editorial, engraving and typesetting charges can be spread, and the higher must be the price of each copy. This is an inexorable situation, and so far as advanced works go it cannot be aided as in some industries by lowering the price to increase the market. In general, lowering the price of an advanced treatise as much as 50% will not increase the market even 25%. This is because the market was definitely restricted in the first place to the professional worker specializing in the field, to a small number of consultants who are "general practitioners," and to libraries. Their numbers are neither legion nor elastic, and most of those who are really in-

terested will buy the book at either $7.50 or $15.00—assuming of course that it is a good book. (If it is not a good book it cannot be sold at any price, even $1.00 or $2.00 a copy!) So a price reduction of 50% might well cut the income of both publisher and author, and this would plainly throw the publisher into the red. (Authors, we are informed by them, are in the red to begin with, so their misery simply becomes deeper.)

It is not fair for me to cry all over you like this without having some specific, constructive recommendations to make. For improving the up-to-dateness of chemical books we can only hope (1) that authors will write shorter books, use fewer words to present a given subject, provide better organized and less "difficult" manuscripts than some do now, make a minimum of alterations in copy or type, and prepare indexes within the time agreed on, and (2) that publishers may be able to streamline their editorial departments to process the work somewhat more rapidly than we do at present. Every one of these improvements definitely shortens the time between the beginning of processing of the manuscript and the publication date. They are all areas in which increasing cooperation among authors, editors and publishers is strongly indicated. They represent the least we can all do to keep our books from being obsolete as soon as they are published.

The continuing development and increasing utilization of books on chemistry are all wrapped up inside the price problem. We all want to get more books into more hands, without going out of business in the process. In our opinion the way to do this is (1) for authors and publishers to avoid over-specialization in selecting subjects and organizing manuscripts for publication; (2) for publishers and printers to extend themselves to the very limit in developing low-cost methods of processing and manufacturing books on chemistry; and (3) for book buyers and readers to understand that technical book prices are not so badly inflated as most commodity prices—especially when considered as the cost of obtaining technical information worth many times the list price of the book.

Speaker: Dr. C. L. Thomas, of Sun Oil Company, who addressed the annual meeting of the Special Libraries Association, as part of the program of the Petroleum Section of the Science-Technology Division, May 26, in New York, N.Y.

Wins Fellowship: From the National Science Foundation: John W. Winchester, A.A.I.C., to attend Massachusetts Institute of Technology this autumn. He received a Student Medal Award from the AIC Chicago Chapter this spring.

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National Council Meetings

Meetings of the AIC National Council are scheduled to be held at The Chemists' Club, 52 East 41st St., New York, N. Y., at 6:00 p.m., on the following dates:

September 10, 1952
November 12, 1952
January 14, 1953
March 11, 1953
April 8, 1953
May 11, 1953 (Philadelphia, Pa.)

June Meeting

The 283rd meeting of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS was held June 11, 1952, at 6:00 p.m. in The Chemists' Club, New York, N. Y. President Lincoln T. Work presided.

The following officers and councilors were present: J. R. Bowman, C. C. Concannon, G. J. Esselen, A. W. Fisher, Jr., F. A. Hessel, M. J. Kelley, D. B. Keyes, M. Sittenfield, F. D. Snell, L. Van Doren, F. E. Wall, and L. T. Work. K. M. Herstein and V. F. Kimball were present.

The minutes of the previous meeting were approved.

President Work reported that the INSTITUTE had received an appreciative acknowledgement from Mrs. Howard W.

Blakeslee concerning the resolution passed at the AIC Annual Meeting, May 7th, on the death of Howard W. Blakeslee, noted science writer.

The President reported that he had attended the meeting of the New Jersey Chapter, May 21st, when the Honor Scroll of the Chapter was presented to Dr. F. A. Hessel, and the meeting of the New York Chapter, May 22nd, when its Honor Scroll was presented to Dr. F. D. Snell. He had also attended the meeting at which the John Scott Award was presented to Dr. Roy J. Plunkett, F.A.I.C., at Wilmington, Delaware. President Work will attend the next meeting of the New England Chapter and will represent the INSTITUTE at the meeting of the American Society for Testing Materials, June 24th.

A letter of acknowledgement from the Honorable Eugene Keogh was read, acknowledging the INSTITUTE's support of the Keogh-Reed Bills.

It was decided to hold the 1953 Annual Meeting in Philadelphia, Pa., May 12-13.

The report of the Treasurer was accepted.

The Secretary reported that the active membership of the INSTITUTE totals 2,515.

He announced with deep regret the death of Eugene J. Cardarelli, F.A.I.C., a charter member of the INSTITUTE.

A letter from the Los Angeles Chapter concerning the licensing of chemists was presented and discussed.

A letter from the Chairman of the Education Committee of the North Jersey Section of the American Chemical Society was presented and referred to the New Jersey Chapter.

Dr. Keyes stated that the New York Chapter has a list of senior college students who might be interested in information about the AIC.

Miss Wall proposed a speaker's bureau, to list the names of those available to speak before various groups, as a useful public relations service.

President Work stated that there should be some readjustment in the amount of finances made available to the Chapters, which could be most easily achieved by an increase in the Chapter membership.

The Secretary was requested to send a leaflet describing the activities of the INSTITUTE to each member of the Council. (This booklet is available to anyone who requests it from the AIC Secretary.)

Mr. Sittenfield reported that the Pennsylvania Chapter planned to hold four meetings during the coming year, one of which would cover the presentation of its Honor Scroll.

Mr. Herstein reported that the New York Chapter was fortunate in having a hard-working team on its Council. One of the activities on which it is working is the Employment Project; another is to encourage younger chemists to develop professional attitudes toward their careers. Honorary Membership will be presented to Dr. Sidney D. Kirkpaptrick at a meeting of the Chapter on October 9th. Senior college students will be addressed by a panel of young, successful chemists in December. In March, student medals will be presented. The Honor Scroll of the Chapter will be presented in May.

Mr. Concannon informed the Council that Mr. Markwood had retired as chairman of the Washington Chapter and is succeeded by Dr. Milton Harris.

Dr. Fisher announced that the New England Chapter would join with the American Section of the Society of Chemical Industry, in June, to honor Godfrey L. Cabot.

The following members were elected.

FELLOWS

Haupt, Clarence Gordon
Chemist, Motive Power Dept., Norfolk & Western Rwy. Co., Roanoke 17, Va.

Homeyer, August Henry
Associate Research Director, Mallinckrodt Chemical Works, 3600 N. Broadway, St. Louis, Mo.

Littell, Nelson
Patent Consultant, Western States Machine Co., 350 Madison Ave., New York 17, N. Y.

Sekera, Vladimir Charles
Chemist, Testing Dept., Commonwealth Edison Co., 72 W. Adams St., Chicago, Ill.

Venable, Emerson
6111 Fifth Ave., Pittsburgh 32, Pa.

MEMBERS

Berry, Madeline M.
Research Associate, Massachusetts Institute of Technology, Cambridge, Mass.

Cheremisinoff, Paul N.
Research Dept. Chemist, Swan-Finch Oil Corp., 338 Hudson St., Hackensack, N. J.

Heimberg, Emanuel
Assistant to Sales Manager, Glyco Products Co., Inc., 26 Court St., Brooklyn, N. Y.

Rice, Leonard Marcus
Research Associate, Georgetown University Medical School, Washington, D. C.

ASSOCIATE

Simons, Blanche Cirila
Assistant to Director, Petroleum Lab., California Testing Labs., 619 East Washington, Los Angeles, Calif.

RAISED FROM ASSOCIATE TO MEMBER

Jehle, Joseph F.
Executive Vice-President, Westchester Plastics, Inc., Mamaroneck, N. Y.

To Europe: Dr. Roger W. Truesdail, F.A.I.C., president. Truesdail Laboratories, Inc., Los Angeles, Calif., where he will address European university and technical groups in Oslo and Bergen, Norway; Stockholm and Gothenburg, Sweden; Copenhagen, Denmark; Amsterdam, Holland; Brussels, Belgium; Paris, France, and London, England. His subjects will be, "The Role of Commercial Laboratories in Industrial Research in the U. S. A." and "Recent Developments in Food Technology in the U. S. A."

Plastics Exhibition: Of the German plastics industry will take place in Duesseldorf, October 11th to 19th, at the Exhibition Grounds.

AIC Activities

C. P. Neidig, F.A.I.C.

BROOKHAVEN TRIP

The New Jersey Chapter will visit the Brookhaven National Laboratory of the U. S. Atomic Energy Commission, operated by Associated Universities, Inc., Brookhaven, Long Island, N. Y., on October 18th.

The research facilities at Brookhaven include the nuclear reactor, the hot chemistry laboratory, the cosmotron (a two and a half billion volt proton synchrotron), a 60-inch cyclotron, an electrostatic generator, and a 2.5 MEV Van de Graaff machine.

Public Service buses will leave the Essex House in Newark, N. J. at nine a.m., October 18th, to arrive at Brookhaven at 11 a.m. A cafeteria luncheon will be served at the Laboratory for $1.25, payable at the Laboratory. It is planned to leave at three p.m. for return to Newark. The cost of the bus trip is $2.50.

Reservations must be made on or before October 4th, as a list showing the home and company addresses of those taking the trip must be furnished to Brookhaven so that they may be cleared by the government. The trip is open to AIC members, who are U. S. citizens. For reservations, write David W. Young, Esso Laboratories, Chemical Division, P. O. Box 51, Linden, N. J.

Kirkpatrick to be Honored

Dr. Sidney D. Kirkpatrick, F.A.I.C., editorial director of *Chemical Engineering* and *Chemical Week* and vice-president and director of editorial development of McGraw-Hill Book Co., Inc., will be made an Honorary Member of THE AMERICAN INSTITUTE OF CHEMISTS at the October 9th meeting of the New York Chapter of the INSTITUTE, it was announced by Karl M. Herstein, president of Herstein Laboratories, Inc., and chairman of the New York Chapter.

Presentation of the award will be made by Dr. Lincoln T. Work, AIC president, at an unusual meeting which will take the form of an old-fashioned "bier abend." The affair is the first in a series of new and different events planned by the New York Chapter for the 1952-53 season.

The event will take place at the Hans Jaeger restaurant, Lexington Avenue and 85th Street, New York, N. Y., in the atmosphere of an old German beer hall. The meeting is open to all and will feature German food, beer and music—the latter to be supplied both by professional musicians and by the audience.

Dr. Donald B. Keyes, AIC president-elect, consultant, author and lecturer will speak about the new honorary member in a short talk entitled, "Keyes Kids Kirkpatrick."

The meeting will start at six o'clock p.m. Tickets are $3.00 each for reservations made in advance, and $3.50, if paid for at the door. Reservations may be made by writing or calling Dr. Albert Guiteras, president of Hudson Laboratories, Inc., 117 West 13th St., New York 11, N. Y.

Nominations Requested

The Jury of Medal Award of THE AMERICAN INSTITUTE OF CHEMISTS, whose duty is to select the recipient of the Gold Medal for 1953, asks AIC members to suggest worthy candidates for this award, which is "made for noteworthy and outstanding service to the science of chemistry or the profession of chemist in America."

Five copies of the *vita* of the nominee and a statement indicating why the nominee is recommended for this award should be sent to the chairman of the Jury, Dr. Gustav Egloff, Hon. AIC, Universal Oil Products Company, 310 South Michigan Ave., Chicago 4, Illinois, by October 15, 1952.

Honor Scroll Presentation

The Honor Scroll, awarded annually by the Chicago AIC Chapter for distinguished service to the profession of chemistry, will be given this year to Bernard E. Schaar, F.A.I.C., president of Schaar and Company, Chicago, Dr. Bernard S. Friedman, Chapter chairman, announced recently. Mr. Schaar is being honored for his devotion to the interests of chemists as professional men and as indi-

viduals and for his untiring efforts in advancing the profession.

Mr. Schaar received the degree of chemical engineer from the University of Cincinnati in 1908. He has been active in the Chicago Section of the American Chemical Society for many years, serving as its chairman in 1931 and as managing editor of *The Chemical Bulletin* from 1923 to 1934. He was a founder of the Chicago Technical Council and has served as its vice-president. He is a trustee of Hull-House and has served as president of the Maxwell Street Settlement. He is a member of the Board of Directors and one of the organizers of the Near West Side Planning Board.

The award to Mr. Schaar will be made at a dinner meeting to be held at The Furniture Club, Chicago, October tenth. The speakers will be Dr. Ward V. Evans, former head of the Department of Chemistry of Northwestern University, who will speak on "Bernie Schaar—a Great Citizen," and Thomas S. McEwan, vice-president of Lester B. Knight Associates, Inc., who will speak on "Bernie Schaar's Contributions to Technical Society Activities."

The dinner will be open to the public and will be informal. Preceding the dinner there will be a reception in the club lounge. Reservations may be made by writing or telephoning John Krc, Armour Research Foundation, 35 West 33rd St., Chicago 16, Ill. Subscription will be $3.75 per plate.

Meeting-in-Miniature

(Reported by Prof. Ernest I. Becker, F.A.I.C.)

The first annual Meeting-in-Miniature of the Student Affiliates of the American Chemical Society was held at Hunter College, May 10th. The New York Section of the American Chemical Society and the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS jointly sponsored the meeting.

Presentation of papers by seniors in the morning was followed by a tour of the Hunter College chemistry laboratories. After luncheon, Prof. Nicholas D. Cheronis of Brooklyn College spoke to the plenary meeting on "Tetrazolium Compounds." The remainder of the afternoon was a social period.

Eighteen seniors representing eight metropolitan colleges presented papers. Three panels were held concurrently and an award presented for the best paper in each panel. The winners were Miss Helen Ondik of Hunter College and Neil Wotherspoon and Donald Klein of the Polytechnic Institute of Brooklyn.

Prof. Arthur B. Kemper of Manhattan College was chairman of the meeting. The principal financial support was provided by the New York Section of the American Chemical Society. Lunch was catered by the Hunter College Chapter of Student Affiliates. The judges and a subsidy for the lunch was provided by the New York AIC Chapter. The attendance was just over one hundred.

New York Chapter

Chairman, Karl M. Herstein
Vice Chairman, Guy A. Kirton
Secretary-Treasurer, John H. Sanders
Representative to National Council, Dr. Maurice J. Kelley.

A completely new program of activities for the AIC New York Chapter has been announced for the 1952-53 season by

Karl M. Herstein, president of Herstein Laboratories, Inc., 128 Water St., New York 5, N. Y., and chairman of the Chapter.

The program will include several new types of meetings, more activities for chemistry students, and a completely new type of awards program.

The new officers of the Chapter, in addition to those listed above, are Counsellors Dr. Maurice J. Kelley, Harry Bennett, Dr. Robert Ginell, Dr. Albert F. Guiteras, Dr. John Happel, Dr. Charles J. Marsel, Dr. Kenneth W. Newman and Dr. Donald F. Othmer.

The following committee chairmen have been appointed:

Young Chemists' Activities, Ernest J. Becker.
Arrangements, Dr. Albert F. Guiteras.
Constitution, Dr. Maurice J. Kelley.
Employment Project, Dr. Henry B. Hass.
Greetings, Dr. Joseph T. Bashour.
Membership and Student Relations, Dr. Charles J. Marsel.
Printing and Mailing, Samuel Cohen.
Program, Dr. Robert Ginell.
Public Relations—Publicity, S. F. Coneybear and Paul B. Slawter, Jr.

New Jersey Chapter

Chairman, Harry Burrell
Chairman-elect, Dr. James B. Allison
Secretary, Dr. E. Arundale
Treasurer, Dr. William A. Raimond
Representative to National Council, T. R. Donlan

The New Jersey Chapter's fourth meeting was held at the Winfield-Scott Hotel in Elizabeth, N. J., May 21st. The highlight of the evening was the presentation of the Honor Scroll of the Chapter to Dr. Frederick A. Hessel, Montclair Research Corporation, long active in the affairs of the AIC and national treasurer for many years. The Honor Scroll was presented by the AIC president, Dr. Lincoln T. Work, following a discussion on "The Recipient, his Scientific and Professional Contributions," by Dr. Lloyd Van Doren, AIC secretary. Student medals were presented to Thomas N. Vincent of Princeton University and Richard Miller of Rutgers University, both outstanding seniors at their respective schools. The main address of the evening dealt with "Personality Factors in Success and Failure," and was given by Dr. W. D. Woodward, psychiatric consultant, American Cyanamid Company. Dr. Woodward's talk and the discussion following it highlighted some of the problems of personal goals, social and personality factors in the chemist's profession.

In addition to the officers for the season 1952-53, shown above, the following councilors of the New Jersey Chapter were announced: Dr. Paul Allen, Jr., Dr. A. J. Frey, Dr. Herbert W. Mackinney, Dr. David Young, Chester A. Amick, Dr. Thomas Wilson, Dr. Ernest R. Hanson, and Dr. P. M. Giesy.

Niagara Chapter

Dr. Emil R. Riegel, F.A.I.C., retiring chairman of the Niagara Chapter, was presented with the Honor Scroll of the Chapter, at a meeting held at Canisius College, June 22nd, for his outstanding service in the teaching of chemistry.

Dr. Riegel is retiring as professor of chemistry from the University of Buffalo at the end of the school term.

The presentation was made by the retiring AIC president, Lawrence H. Flett, director of new product development of the National Aniline Division, Allied Chemical and Dye Corporation. In the presentation, Mr. Flett said, "We owe the many excellent chemists in industry to the teachers in our universities. Dr. Riegel has made an outstanding contribution to industrial chemistry by his fine teaching of the subject . . . Dr. Riegel's book, *Industrial Chemistry*, has sold 60,000 copies, when the average chemistry book sells about 1,500 copies."

Mr. Flett pointed out that because of the prolific writings of so many chemists and the personal contacts that they have and through their teaching, chemists have a wide influence over a very large number of people and should use this influence wisely.

The new officers elected to the Niagara Chapter are:

Chairman, Lothar Sontag

672 Niagara Falls Blvd.,
North Tonawanda, N. Y.

Vice Chairman, Robert H. Schuler
493 Glennwood Ave.,
Buffalo, N. Y.

Secretary, Theodore E. Gilbert
354 East Utica St.,
Buffalo, N. Y.

Treasurer, Frederick Sievenpiper
Alden N. Y.

Representative to National Council,
Hans O. Kauffmann
58 Koster Row
Eggertsville, N. Y.

Will You Come?

Sept. 25, 1952. Los Angeles Chapter Meeting to present Honorary AIC Membership to Dr. Glenn T. Seaborg. University Club, Los Angeles, Calif. For information write Frank T. Bewley, Braun Corp., 2260 E. 15th St., Los Angeles, Calif.

Oct. 9, 1952. Pennsylvania Chapter. Engineers Club, Philadelphia, Pa. Speaker: Dr. R. M. Burns, chemical coordinator, Bell Telephone Labs. "Science & Scientists in Tele-Communication." Reservations: Adalbert Farkas, The Barrett Div., Allied Chem. & Dye Corp., Margaret & Bermuda Sts., Philadelphia, Pa.

Oct. 9, 1952. New York Chapter. Award of Honorary AIC Membership to Dr. Sidney D. Kirkpatrick, F.A.I.C. Speaker: Dr. Donald B. Keyes, "Keyes Kids Kirkpatrick." Presentation of award: President Lincoln T. Work. Informal. Hans Jaeger restaurant, Lexington Ave. & 85th St., New York, N. Y. $3.00 in advance. $3.50 at door. Reservations: Dr. Albert Guiteras, president, Hudson Laboratories, Inc., 117 W. 13th St., New York 11, N. Y.

Oct. 10, 1952. Chicago Chapter. Meeting to present Honor Scroll to Bernard E. Schaar. Furniture Club, Chicago, Ill. Tickets $3.75. Reservations: John Krc, Jr., Armour Research Foundation, 35 W. 33rd St., Chicago 16, Ill.

Oct. 18, 1952. New Jersey Chapter. Trip to Brookhaven National Laboratory, AEC. Reservations must be made on or before Oct. 4th. Write, David W. Young, Chemical Div., Esso Laboratories, P. O. Box 51, Linden, N. J.

Sponsored Industrial Research

Chicago, Ill. 13791 S. Ave. "O"
Madison, Wis. 323 W. Gorham St.
New York, N. Y. 50 E. 41st St.

Dec. 4, 1952. Philadelphia Chapter. Honor Scroll to be presented to Dr. Ralph Connor, vice-president, Rohm & Haas. Penn Sheraton Hotel, Philadelphia, Pa. For information write Adalbert Farkas, The Barrett Div., Allied Chemical & Dye Corp., Margaret & Bermuda Sts., Philadelphia, Pa.

May 12-13, 1953. Annual Meeting of The American Institute of Chemists. Philadelphia, Pa. Committee on Arrangements: Marcus Sittenfield, C. P. Neidig, and Hillary Robinette.

Information

"Work Clothes of Dynel Fabric." Bulletin No. CF-28. Mine Safety Appliance Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa.

"New Photoelectric Light Recorder." Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark 5, N. J.

"Determination of Vitamin D in Milk." Bulletin. Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.

"Mallinckrodt Analytical Reagents and Laboratory Chemicals." Catalog. Mallinckrodt Chemical Works, 72 Gold Street, New York 8, N. Y.

"Dollar Savings Through Standards." Case history studies. $1.00. American Standards Association, 70 East 45th St.,

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"Federal Food, Drug and Cosmetic Act. Judicial and Administrative Record—1949-50." By V. A. Kleinfeld and C. W. Dunn. 544 pp. Book. $10.25. Commerce Clearing House, Inc., 522 Fifth Ave., New York 18, N. Y.

"Terralac Synthetic Sow's Milk." Information. Chas. Pfizer & Co., Brooklyn 6, N. Y.

"Emery Diesters for Synthetic Lubricants." Samples and Bulletin. Emery Industries, Dept. 5, Carew Tower, Cincinnati 2, Ohio.

"Ferrolum Lead Clad Steel and Cupralum Lead Clad Copper." Booklet. Knapp Mills, Inc., 23-15 Borden Ave., Long Island City, N. Y.

"What's New for the Laboratory." Catalog. Scientific Glass Apparatus Co., Inc., Bloomfield, N. J.

"Acetic Acid." Chemical Safety Data Sheet SD-41. 35 cents a copy. Manufacturing Chemists' Association, Inc., 246 Woodward Bldg., Washington 5, D. C.

"Nefluoro-Photometer." Brochure. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"Fluorescent Accessories for Use with Black Lights." For displays, etc. Catalog. Ultra-Violet Products, Inc., 145 Pasadena Ave., South Pasadena, Calif.

"X-Ray Diffraction Charts." $5.00 Metals Research Dept., Armour Research Foundation, 35 West 33rd St., Chicago 16, Ill.

"Tomorrow is Today." Brochure. Minneapolis-Honeywell Regulator Co., Wayne & Windrim Aves., Philadelphia 44, Pa.

"Cooley Type B-L Electric Box Furnace." Information. Cooley Electric Mfg. Corp., 915 Daly St., Attention C-1, Indianapolis 2, Indiana.

"Coleman Chemputer." Bulletin B-220. Coleman Instruments, Inc., 318 Madison St., Maywood, Ill.

"Noreco 216 and 216-S Concentrated Oil Additives." Noreco Oil Corp., 20 West 43rd St., New York 18, N. Y.

"Dry-Flow-Starch." New Product. Write National Starch Products, Inc., 268 Madison Ave., New York, N. Y.

"New Micro Metallic Corporation all Monel Pressure Snubber." Information. Chemiquip Sales Co., 193 Bradford St., Brooklyn 7, N. Y.

"Rubicon Notes." Rubicon Company (Electrical Instrument Makers), Philadelphia 32, Pa.

"No. 52T Mills. New Grinding Mills." Information. Charles Ross & Son Co., 148-156 Classon Ave., Brooklyn 5, N. Y.

"Semi-annual Report of the Atomic Energy Commission." U. S. Government Printing Office, Washington 25, D. C.

"Bristol Products. Classification List. Trade Names. Directory." Information. The Bristol Co. (Automatic Controlling, Recording and Telemetering Instruments). Waterbury 20, Conn.

"Industrial Magnifiers—How to Choose and Use Them." Manual. Bausch & Lomb Optical Co., Rochester, N. Y.

"Mixing and Grinding Machinery." Catalog No. 118A. Charles Ross & Son Company, 148-156 Classon Ave., Brooklyn 5, N. Y.

"Olin Industries, Inc." 44 pp. Booklet describing organization, activities, products and history of Olin Industries, Inc., East Alton, Ill.

For Your Library

Carotenoids

By P. Karrer & E. Jucker. Translated and revised by E. A. Braude. Elsevier Publishing Co., Inc. 1950. 384 pp. 9½" x 6½". $8.50.

This excellent reference volume describes about 80 different carotenoids. These pigments are related to one parent compound, lycopene, and can be converted to a series of other carotenoids by simple chemical changes. Their mode of action, their formation in plants and animals, their isolation and chemical and physical properties are admirably presented. Paper, printing, and binding are of fine quality.

—Dr. Henry Tauber, F.A.I.C.

Six-Membered Heterocyclic Nitrogen Compounds with Four Condensed Rings

By C. F. H. Allen (Eastman Kodak) in collaboration with D. M. Burness, Jean V. Crawford, F. W Spangler, E. R. Webster, and C. V. Wilson. 1951 *Interscience Publishers* 358 pp. 6" x 9". $10.00. *Special subscription price,* $9.00.

This is the second volume to appear in a series of monographs on The Chemistry of Heterocyclic Compounds under the editorship of Arnold Weissberger of Eastman Kodak, which will make accessible to research chemists details about the synthetic procedures and the physiological and industrial significance of this complex branch of organic chemistry.

The polynuclear heterocyclic compounds containing nitrogen and four fused six-member rings, which are presented here, are of particular interest to the drug and dye industries but have a wide theoretical and historical importance. Both research worker and student of organic chemistry will find this book valuable for reference. By adopting a uniform system of nomenclature (the "a" system)) the authors have made it possible to locate the different series of compounds for comparison, and their arrangement in the book clarifies both the similarities and differences shown by the individual members of the various ring systems.

—Dr. Frederick A. Hessel, F.A.I.C.

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Distillation

Series: Technique of Organic Chemistry, Vol IV. By A. & E. Rose, F. E. Williams, A. L. Glasebrook, C. S. Carlson, J. R. Bowman, R. S. Tipson, J. C. Hecker and E. S. Perry. Interscience Publishers. 668 pp. 6" x 9¾". $14.00.

The theory of distillation and the distillation of liquefied gases is competently treated by A. & E. Rose; fractional distillation by Glazebrook and Williams; moderate vacuum and sublimation by Bowman and Tipson; high vacuum by Perry and Hecker. Extractive and azeotropic distillation by Carlson relies on reports in the technical literature.

This book is detailed in laboratory technique and replete with information.

—Dr. John A. Steffens, F.A.I.C.

Aspects of the Constitution of Mineral Oils

By K. Van Nes & H. A. Van Westen, with an introduction by H. I. Waterman, professor of chemical technology, Technical University of Delft, Holland. Elsevier Publishing Co. 1951. 483 pp. 6" x 9". $9.00.

Written by two of the research chemists of the Royal Dutch Shell Laboratories of Amsterdam, this authoritative monograph is of particular interest because of the chapters dealing with the hitherto unpublished method for structural group analysis (n-d-m) which was developed by the authors during World War II. But the book includes the work of numerous other investigators all over the world and is, in fact, a comprehensive survey of present-day techniques in the petroleum field with a valuable bibliography, author and subject indexes. For oil men, it is a Must; for organic chemists, important as a key to one of the major applications of their art.

—Dr. Frederick A. Hessel, F.A.I.C.

NOT OUR BOOK

To the Editor:

We appreciate the little plug on page 179 of the April (1952) number of THE CHEMIST, the one crediting us as the publisher of *Superfluids* by London—even if it isn't our book. As a matter of fact, we have a manuscript in work on low temperature physics. However, I'm sure the publisher of *Superfluids* would appreciate a correction in a later number. . . .

—Elsevier Press, Inc.

CORRECTION

Superfluids, by Fritz London, 161 pp., 6" x 9¼", $5.00, was published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Verlag Birkhaeuser Basel: *Prozenttabellen organischer Verbindungen* (*Tables of Percentage Composition of Organic Compounds*), by H. Gysel, 1951, 637 pp., Sfr. 125. The percentages of the different elements in 70,000 compounds of the types C-H, C-H-O, C-H-N and C-H-O-N, from $(CH)_n$ to $C_{50}H_{102}O_2N_2$, are given to two decimal places. In addition, a number of tables are included to facilitate the calculation of any formula not contained in these comprehensive tables. It is noteworthy that, even so not listed, S-containing compounds can be found in these tables because the atomic weight of S is practically double that of O; thus, the %-composition of $C_{18}H_{26}O_4N_2S$ can be read from the figures published for $C_{18}H_{26}O_6N_2$. Similarly, O-containing compounds may be used for Br-compounds since the atomic weight of Br is almost equal to that of five O-atoms. This valuable volume is usable for chemists everywhere. The introductory part is printed in German, English, and French, and the tables consist of figures only.

Jordan & Sons, London WC 2: *Financial Control for the Small Manufacturer*, by F. Simmonds, 2nd ed., 104 p., 15 s. This book was written with the idea that sound financial control makes successful balance sheets. It will be found helpful by any manufacturer who wants to know the key facts about banks, debts, wages, materials, production cost, profitability, money, raising, etc.

Wepf & Co., Basel: *Makromolekulare Chemie und Biologie*, by Hermann Staudinger, 1947, 160 pp. (34 ill.), Sfr 18. An expert gives a rare inside view of the macromolecular chemistry, its problems and findings, especially with respect to biology. Among the subjects clearly and concisely discussed are many natural substances (e.g., polysaccharides, nucleinic acids, proteins) and synthetic materials, as well as such multifarious subjects as viscosity of colloidal solutions, elasticity, and singularity of life.

Walter de Gruyter & Co., Berlin W 35: *Absorptions-Spektralanalyse*, by F. X. Mayer and A. Luszczak, 1951, 238 pp. (74 ill.), DM 14. Theory and practice of the absorption spectral analysis, with a number of practical examples worked out for ultraviolet absorption. They prove that up to nine or ten compounds in mixtures and traces of a few thousandths of one per cent can be determined by this modern analytic method. • *Anorganische Chemie*, by Wilhelm Klemm, 7th ed., 184 pp. (18 ill.), paper covers, DM 2.40. A very brief, yet up-to-date treatise on general and inorganic chemistry.

Sir Isaac Pitman & Sons, London: *Latin for Pharmaceutical Students*, by J. W. Cooper and A. C. McLaren, 5th ed., 115 pp., 8s 6d. A textbook which, in 11 lessons, teaches the basic facts of Latin grammar and contains over 3,000 words needed by pharmacists, physicians, and pharmaceutical chemists. The course takes only six months for students who have never studied Latin. Others who feel the need for a refresher course will also welcome this condensed text.

Urban & Schwarzenberg, Munich 22: *Chemische Bestimmungsmethoden im klinischen Laboratorium*, by K. Hinsberg and R. Merten. 1952, 291 pp. (42 ill.), DM 18.60. This is more than a compilation of proved analytical methods for the clinical-chemical laboratory—the authors take pains to explain the biochemical processes of both the healthy and the sick body and dwell particularly on methods important for the differential diagnosis of diseases.

Opportunities

Doris Eager, M.A.I.C.

Positions Available

For Sale: Chemical, Bacteriological and Industrial Laboratory. In business for 30 continuous years. Asking price $2,000 for goodwill, equipment and stock. Box 93, The Chemist.

Chemists Available

Manager Research and Development: Ph.D., F.A.I.C., age 43. Industrial experience in the development and manufacture of synthetic organic chemicals, surface active materials and industrial detergents. Has directed laboratory research, pilot plant, and sales service groups. 20 patents, others pending. Box 90, The Chemist.

Administrator: Ph.D., F.A.I.C., age 46. Nine years as director of research projects of large foundation. Eight years as assistant and associate professor in major university. Organic chemistry, especially carbohydrates, food technology, nutrition. Box 92, The Chemist.

Chemist Engineer: Dr.phil. Dr. eng. summa cum laude. Age 52. Twenty-eight years experience in management and developing chemical, metallurgical processes and equipment. Numerous inventions practiced and pending. Responsible position for developing, consulting, trouble-shooting desired. Box 80, THE CHEMIST.

The Future: According to Crawford H. Greenewalt, F.A.I.C., speaking at the 150th Anniversary celebration of E. I. du Pont de Nemours and Company, July 18th, holds as much promise as the past: "We stand on the threshold of a new continent. the vast unexplored area of science which advancing technology has opened to us. It is a continent fully as rich and as abundant as the geographical America of E. I. du Pont's day."

New Research Grants: Made by the National Vitamin Foundation, New York, N. Y., this year bring the total appropriated for research purposes by the Foundation, since its incorporation in 1946, to $573,680. In addition, more than $110,000 has been appropriated for educational and public health purposes.

New Scholarships: Added to the list of those administered by the Pulp and Paper Foundation of the University of Maine, Orono, Me., were announced recently by John B. Calkin, F.A.I.C., secretary of the Foundation.

Scholarships: Offered annually by Central Scientific Co., Chicago, have been awarded for 1952-53 to Albert J. Rothman, Department of Chemistry, University of California, Berkeley, and William F. Miller, Department of Physics, Purdue University.

Head: Of the Technical and Professional Recruiting Division of American Viscose Corporation, 1617 Pennsylvania Boulevard, Philadelphia, Pa., B. Brooke Bright, who will recruit technical and professional personnel in connection with the company's expanding development and research program.

New Address: The Kamlet Laboratory is now located at 52 Sheridan St., Stratford, Conn.

The Program: Of Section C (Chemistry) of the American Association for the Advancement of Science, to be held in St. Louis, Mo., December 26-31st, will consist of general papers on Friday, the celebration of the centennial of Washington University on Monday, and excellent symposia on Saturday, Sunday, Tuesday, and Wednesday.

The Symposia include titles such as: Contributions of Chemistry to New Textile Fibers; to Animal and Human Nutrition; to Medicine; to Dentistry; to Agriculture; Chemical Economics of Fuels of the Future, and an Alpha Chi Sigma-sponsored program on Professional Training. The symposia have been arranged by Dr. Carroll A. Hochwalt, F.A.I.C., and J. J. Healy, Jr., F.A.I.C., both of Monsanto Chemical Company.

Titles and abstracts of papers for the general session, December 26th, should be sent to Dr. Ed. F. Degering, Secretary, Section C., A.A.A.S., 1860 Colonial Drive, Memphis 7, Tenn. on or before the first of October.

Announced: By H. B. McClure, F.A.I.C., vice-president of Carbide and Carbon Chemicals Company, Division of Union Carbide and Carbon Corp., the appointments of John Conway, J. A. Field and W. A. Woodcock as assistant managers to Dr. R. L. Bateman, manager of the Fine Chemicals Division.

Industrial Division: Formed by Sterling Advertising Agency, 535 Fifth Ave., New York 17, N. Y. It is headed by Donald M. Martin, formerly advertising manager of General Dyestuff Corporation, and Paul B. Slawter, Jr., M.A.I.C., formerly vice-president, The House of J. Hayden Twiss, Advertising, New York. Mr. Slawter holds many offices in chemical organizations. He lectures on chemical advertising and publicity at Columbia University and the Polytechnic Institute of Brooklyn and is the author of the section on industrial advertising in the forthcoming book, "The Chemical Business Handbook," edited by J. H. Perry (McGraw-Hill). Prior to joining the Twiss Agency in 1945, Mr. Slawter served as combat flier in the U. S. Army Air Force.

Appointed: W. E. Blair to the post of executive assistant, reporting to the president, and D. H. Ross, F.A.I.C., to the position of director of product development for the Solvay Process Div., Allied Chemical & Dye Corporation, 61 Broadway, New York 6, N. Y. Mr. Ross is a graduate of Yale University. He was first employed by Solvay in 1934. He became assistant manager of the product development department in 1942, and now succeeds Mr. Blair as director.

Sales Office: Opened by Archer-Daniels-Midland Co., at 1495 Custer Ave., San Francisco, Calif., managed by W. A. Baker.

On Lecture Tour: Dr. Hilton Ira Jones, F.A.I.C., director of research of the Hizone Laboratories, Wilmette, Illinois. Under management of the Redpath Bureau he plans to speak at Champaign, Ill.; Mitchell, Aberdeen and Rapid City, S. Dak.; Sheridan, Wyo.; Payette, Idaho; Salt Lake City, Utah; Pueblo, Col.; Muskogee, Okla.; Grand Island, Neb.; Topeka and Wichita, Kan.; Jackson, Miss.; Lafayette, La.; and Minneapolis, Minn. Dr. Jones is a member of the advisory editorial board of THE CHEMIST, and has contributed the column, "Peeps at Things to Come," to *The Rotarian*.

Honored: Dr. Alexander Silverman, Hon. AIC, by the administration and the Board of Trustees of the University of Pittsburgh, with a silver medallion for the years of valuable service which he has rendered over a period of fifty years with the university. In 1901 he was undergraduate teaching assistant in chemistry. In 1905 he joined the full-time teaching staff of the Chemistry Department, and from 1918 to 1951, he was head of the department.

Meeting of the Society for Applied Spectroscopy, October 7th, at Socony-Vacuum Training Center, 63 Park Row, New York, N. Y. Speaker: Dr. Robert C. Hirt, Stamford Research Labs., American Cyanamid Co., on "The Ultraviolet Spectra of Nitrogen Compounds."

Heads Sugar Groups: Dr. Henry B. Hass, F.A.I.C., now president of Sugar Research Foundation, Inc., and Sugar Information, Inc., 52 Wall St., New York 5, N. Y. Until July, he was director of research for General Aniline and Film Corporation. Previously, he was head of the Department of Chemistry at Purdue University. He received the M.S. and Ph.D. degrees from Ohio State University, under Dr. William Lloyd Evans, AIC medalist, and honorary degrees from Ohio Wesleyan University and the University of Chattanooga, which thus recognized his studies of chlorination, nitration, fluorination and general organic synthesis. His nitration studies made nitromethane commercially available and sparked the discovery of the modern method of making higher sugars from lower ones. Dr. Hass was chairman of the New York AIC Chapter for 1951-1952.

New Office: Established by Bjorksten Research Laboratories of Madison, Wis., in Washington, D. C., principally as a center for literature research in the libraries of the Patent Office, the Library of Congress, and other depositories. Dr. Johan Bjorksten, F.A.I.C., announced that the office is under the direction of James W. Perry, F.A.I.C., director of literature research of the Bjorksten Research Laboratories. Henry C. Tovey is attached to the Washington office as literature chemist.

Condensates

Ed. F. Degering, F.A.I.C.

Buckman Labs., Inc.

A single step in the synthesis of cortisone by the use of a type of bread mold, does what now requires a series of highly complicated chemical steps. This makes possible also the use of several substances of both animal and plant origin as starting materials for the production of cortisone, according to reports from the research team at Upjohn Co.

Horace Greeley reputedly said "Go West, young man, go West," but the chemical industry prefixed a South and located on the Gulf Coast, as evidenced by the ethyl benzene plant of Dow Chemical Company, the glycerine plant of Shell, the styrene plant of Monsanto Chemical Company, and many others which are making the Southwest a chemical bonanza.

The new employee makes a serious error, according to A.I.C. ex-President Flett, if he assumes that in ten years or so he will be seated at a desk answering questions. Someone, after all, must do both laboratory and production work.

Synthetic rubber manufacturing facilities in the U.S., according to John L. Collyer, president of B. F. Goodrich Co., are producing at the rate of 930,000 tons per year, which is about 65 per cent of our total consumption of new rubber.

Chemists and chemical engineers with musical ability might consider, among others, the Dow Chemical Company as a prospective employer.

"It is among the evils, and perhaps not the smallest, of democratical governments, that the people must feel before they will see. When this happens they are roused to action. Hence it is that those kinds of government are so slow."

—Cato

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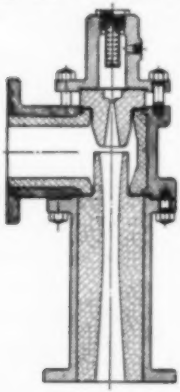

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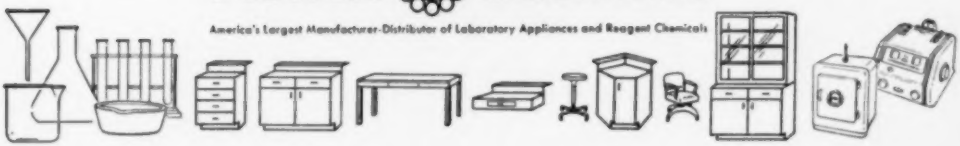

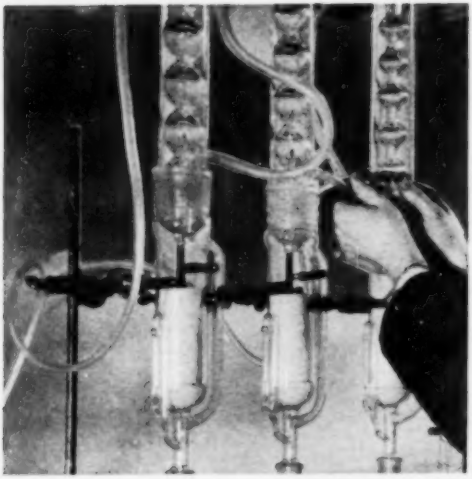

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